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JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



A "SQUARE ONE" RECEIVER — PART 3

NIGHT TIME VHF PROPAGATION

RON WILKINSON AWARD 1983

REVIEW — RTTY GEAR

JUNK BOX ATU

HIGH RESOLUTION MICROSCOPE



YAESU'S NEW HF TRANSCEIVER



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VK3BSR



amateur radio

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**The Poppet Head of the Hainault
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Hainault's Reward.**



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PARLIAMENT OF VICTORIA
NATURAL RESOURCES AND ENVIRONMENT
COMMITTEE

INQUIRY INTO RADIO MASTS

On 7 December 1982 the Governor in Council requested the Committee to inquire into, consider and report to Parliament by 30 June 1983, whether the environmental impact of larger radio masts throughout the metropolitan area is of a degree of significance sufficient to justify municipal control over the appearance of such masts in residential areas.

Persons or organizations wishing to assist the Committee in this inquiry are invited to forward submissions by 31 March 1983 to:

The Secretary,
Natural Resources and Environment Committee,
Parliament House,
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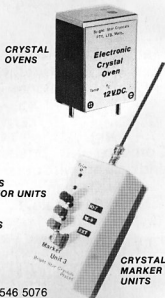
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AT365	Jostykit 3 Channel light show kit	\$74	\$39
B606P	Jostykit Box for AT468 light show	\$31	\$14
HF305	Jostykit Converter 175-105MHz to 105MHz	\$55	\$14
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HF330	Jostykit Stereo Decoder	\$27	\$10
HF61	Jostykit Medium Wave Receiver	\$22	\$6
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57 City Road, South Melbourne, Victoria (03) 62 6931
SYDNEY:
Emtronics, 649 George St., Sydney (02) 211 0531
WELLINGTON, N.Z.:
Malvicom, 18 Raraa Road, Lower Hutt (4) 697 625

Dealer enquiries invited.

a word from your EDITOR



SELLING USED EQUIPMENT VIA HAMADS?

Having difficulty in moving some of that exotic gear? Have you considered the possibilities that you have overpriced that unit you want to update? Just what is the real value of used commercial equipment?

Some research over the past two years has shown that many sellers are not prepared to 'write off' the capital cost of their equipment. Amateur equipment is just like any other commodity, such as cars, TV sets, furniture etc. They all depreciate in value rather quickly, especially in the first twelve months, then settle to a small 'residual' value.

Most businesses amortise the capital cost of equipment over a period of five years, and are thus able to claim certain taxation benefits on its depreciation.

Amateur radio gear also depreciates at a fairly rapid rate, but unfortunately we are unable to claim any taxation benefits. So the capital depreciation value has to be borne by the purchaser.

One would expect a modern transceiver to last well over five years, however, each year new and 'up dated' equipment appears on the market, with the effect that used equipment, even only two or three years old, is almost 'obsolete'. What therefore is the real value?

Let us look at an ICOM IC720A purchased new in January 1982. The all up cost with power supply, external speaker, desk microphone was around \$1650. At the time of purchase, it was the 'top line' of amateur transceivers. Now in only a little over twelve months, at least two new models have come onto the market from the same manufacturer. Several factors to take into consideration are:—

The IC720A is 'used', and now out of warranty.

The second hand market is limited.

There are other comparable new transceivers on the market from the other manufacturers.

There is a negligible trade-in allowance available towards the cost of a new transceiver.

The current economic climate — (there is much buyer resistance at the present time, and many people including amateurs are just 'not spending').

How desperate am I for the money?

If I were to offer my 720A for sale, this is perhaps how I would look at its value.

Firstly, the set, being a little over twelve months old, I would reduce the initial purchase price immediately by twenty per cent, down to \$1320. Next I would look at what similar makes are selling for in advertisements (hamads etc.), and also look at prices for the new and comparable models, and those from other makers.

In this case, the new ICOM IC740 sells for around \$1250. Therefore my 720A is dearer than the new set, even though the 720A has a few more 'bells and whistles'. To ensure a sale, I would therefore have to reduce the price to be competitive with the IC740, so I would be thinking around \$1150.

I have seen some IC720A's being advertised for around \$950, so what hope have I in attracting a buyer at \$1150?

Not being 'desperate' for the cash, I would probably run an advert listing it at \$1350, to test the market. Then if no response, drop the price \$100 or so until a buyer was found. However, the disadvantage is that it may take four months or more to sell, and the advert also becomes 'stale'. Further, a new model may come onto the market in the meantime, thus reducing the chances of a sale at an acceptable price even further.

One is therefore in quite a dilemma!

Taking all of the above into consideration, I would be most lucky to attract a buyer at \$1000, so therefore in a little over twelve months and selling at \$1000, my initial purchase has depreciated by over thirty-nine per cent. This works out at \$12.50 per week.

I would expect after three years, and using the above criteria as a guide, the IC720A would probably be worth only \$500. However, this is possibly a little unrealistic and \$700 could be a more acceptable figure, and I would expect after five years, the value would be around \$400-\$500.

It is rather clear that to keep up with the 'state of the art', one must be prepared to:—

Amortise the total capital cost over no more than four years. Taking the above transceiver as a typical example, this works out at \$8.00 per week.

If desirous of disposing of the initial purchase between one and two years, an allowance for depreciation of approximately \$13.00 per week should be made.

One however cannot predict the mood of the second hand market, there are quite a number of other variables to be taken into account also. Among these are newcomer ignorance, condition of the equipment offered for sale, and the current inflation rate.

In my own personal case, I would probably be expecting to 'up date' my equipment after three years. Then I might also be thinking about a new linear, beam, VHF transceiver, meters, coax etc. Where does it all end?

Perhaps home brewing is the answer.

How much do I expect to get out of my hobby? Well two things are definite:—

- I intend to remain an amateur.
- I won't be showing this editorial to my wife.

VK3UV Editor.



WIA NEWS

INQUIRY INTO RADIO MASTS

The following item appeared in the Victorian Government Gazette on 8th December 1982. The Wireless Institute of Australia will be making a submission to the enquiry in due course. Further information will be published as it comes to hand and members will be advised of any action deemed necessary.

In the meantime it is important that all amateurs join the WIA to allow us to present a 100 per cent unified front. Please show this item to any non-member amateur stressing full support is needed NOW.

The outcome of this enquiry could have vast national consequences to the amateur service if not handled in a united fashion.

Parliamentary Committees Act 1968, No 772
REFERENCE TO THE NATURAL RESOURCES AND ENVIRONMENT COMMITTEE
At the Executive Council Chamber, Melbourne, the seventh day of December, 1982

PRESENT

His Excellency the Governor of Victoria
Mr Roper Mr Spyker Mr Simpson

INQUIRY INTO RADIO MASTS

Whereas section 4f (1) (a) (ii) of the *Parliamentary Committees Act 1968* provides (*inter alia*) that the Governor in Council by Order published in the *Government Gazette* may refer any proposal, matter or thing relevant to the functions of the Joint Investigatory Natural Resources and Environment Committee under the said Act for inquiry consideration and report to the Parliament.

Now therefore His Excellency the Governor of the State of Victoria, by and with the advice of the Executive Council thereof, and in the exercise of the powers conferred on him by the said Act, doth hereby refer to the said Committee the following matter, namely:

To inquire into, consider and report to Parliament, by 30 June 1983, whether the environmental impact of larger radio masts throughout the metropolitan area is of a degree of significance sufficient to justify municipal control over the appearance of such masts in residential areas.

And the Honourable John Cain, Her Majesty's Premier for the State of Victoria, shall give the necessary directions herein accordingly.

TOM FORRISTAL
Clerk of the Executive Council

CABLE TV

The following letter was forwarded to the Queensland Division of the WIA by Mr David Jull MHR in response to a

query raised in respect of cable television.
This is the Minister of Communication's reply:

Dear Mr Jull,

I refer to your letter of 22 November 1982 in which you made personal representations on behalf of Mr Fred Saunders of the Queensland Division of the Wireless Institute of Australia. Mr Saunders is concerned that problems of electromagnetic compatibility (EMC) encountered overseas may be repeated here unless adequate planning takes place for the installation of cable television.

I am not yet in a position to give you a definitive answer regarding technical standards for cable television hardware. This is a complex issue which involves consideration of the recommendations in the Australian Broadcasting Tribunal Report as well as the report of the Committee of Inquiry into Telecommunications Services in Australia (the Davidson Report).

I would ask you to assure Mr Saunders, however, that I am fully aware of the implications of his question. I am concerned to protect the rights of existing users of telecommunications services and of the radio frequency spectrum. I am giving this matter careful attention in my evaluation of the recommendations of both reports.

Yours sincerely
N A Brown



QSP



ONE OR TWO ROTTEN APPLES

In any society, it is an accepted fact some people step outside of the guidelines of the establishment. The reasons for this could probably be summed up as follows:

1. ignorance of the rules
2. downright stupidity
3. personal selfish reasons

The amateur service as we all know, has some very strict rules, and if someone operates their equipment outside of the regulations, it casts doubt on our viability and may have repercussions which could affect us all.

The WIA has fought for many years to win the operating privileges we now possess. The WIA and the amateur service are held in very high regard in official circles, and for a hobby activity, this is no mean feat.

We have got where we are today the hard way, but there is still a lot more work to be done. We shall now allude to an area which is of immense concern to the WIA and the amateur service in general. The offenders are in the minority, but their actions can cause us all harm.

Recently a number of amateurs have expressed to the Federal Executive their concern at the on-air conduct of a small number of other amateurs. I believe these complaints are justified.

Because we believe that it is very important that so far as possible the amateur service is self-regulating, the executive has decided that I should remind all amateurs of their obligation to comply with the conditions of their amateur licence.

Currently, there is much debate in our country as to whether or not a dam should be built on the Franklin below Gordon River in Tasmania. I respect the fact that many

people hold very sincere and very strong views on that matter.

However, there is, in my view, no doubt that certain matter has been transmitted relating to this issue by some amateurs that can be described as information of a political character. That is contrary to the conditions under which amateurs are licensed. It also involves the amateur service in a controversy, whatever view one takes of the matter, that has no place in amateur radio. Other frequencies should be sought by those who wish to use radio for such purposes.

Offensive or obscene language is prohibited, yet we have heard such language on certain HF bands.

Radio amateurs have a privileged use of the radio spectrum for purposes that are responsible and non-commercial and non-political. I sincerely believe that if any of us, whether unthinkingly or because of strong and sincere convictions, use the amateur bands improperly, we prejudice all amateurs. We invite new and more restrictive regulations, and stringent policing of those regulations.

The Wireless Institute of Australia's most important role is to advance the interests of Australian amateurs. I would not like that role to become basically defensive.

Accordingly, I urge all amateurs, the divisions and other organizations to be conscious of the basis of our use of our bands and to encourage each other for all our benefit to use our bands only responsibly, non-politically and non-commercially.

Law abiding amateur operators must be continually alert for breaches of the regulations by others, and point out politely to offenders the errors of their ways. If difficulties arise your division should be advised immediately, so that proper action may be taken.

AR



INTERNATIONAL NEWS

NEWS FROM ARS — INDIA

The Government of India now permits each Indian Radio Amateur to obtain foreign exchange to the value of Rs 10,000/- (approx. \$US1000) each year to import amateur equipment.

During 1982 Yaesu offered 'rockbottom, slashed prices' for their equipment and as a result there is a sudden growth of VHF activity in India.

There is an IBP beacon operational, from New Delhi 'around-the-clock' on 28.295 MHz — call sign VU2BCN. QSL to VU2VIM.

The 80 metre band has been extended and VU amateurs may now operate 3.500-3.540 and 3.890-3.900 MHz. But the new 10, 18 and 24 MHz WARC bands are not yet allotted in India.

By the 1st January 1983 the number of valid amateur licences issued in VU-land was expected to be over 1100.

Over the past thirteen years you have worked an odd prefix emanating from India

and wondered 'why the change?'

Here is a list of the prefixes used, the times when operational and the reason.

- (A) Month of October 1969 ... Call prefix VU0 instead of VU2 to mark the Ghandi Centenary Celebrations. The ARS of India issued Worked Republic of India (Ghandi Centenary Award).
- (B) Months of August to December 1972... Call prefix VU25 instead of VU2 to mark the 25th Anniversary of Indian Independence.
- (C) Month of May 1979 ... Call Sign VU25ARS instead of VU2ARS to mark the 25th Anniversary of the AMATEUR RADIO SOCIETY OF INDIA, New Delhi (ARS) was born on 14 May 1954 at New Delhi).
- (D) Month of November 1981 ... Call sign AU2CD instead of VU2HV was allotted to mark the annual children's day

celebrations beginning every year on the birthday of late Jawaharlal Nehru, the first Prime Minister of India. (14th November.)

- (E) Month of December 1981 ... Call sign AU2SIF was issued to South Indian Fair at Hyderabad.
- (F) Months of August to 15 December 1982 ... Call sign VU9 instead of VU2 to mark the 9th ASIAN GAMES being held in India at New Delhi, Bombay & Jaipur.
- (G) Months 14 Nov. '82 to 5th December '82 ... Call sign VU82AG instead of VU2CJ/VU2ARD to begin on the annual children's day celebrations at the site of celebration and to continue till end of 1982 ASIAN GAMES.
- (H) Months of 24 Nov. '82 to 5th December '82 ... Call sign AU9ASG instead of VU2APR (Hyderabad APARS) representing 9th ASIAN GAMES. A group of amateurs from South India, Hyderabad, maintained Communications on HF between Jawaharlal Nehru Stadium, New Delhi and Asian Games stadium at Jaipur.

AR

A "SQUARE-ONE" RECEIVER —

Part 3

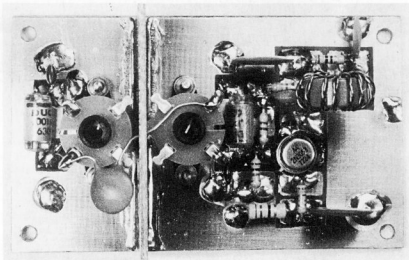
Drew Diamond, VK3XU,
43 Boyana Cres., Croydon, 3136

CONSTRUCTION

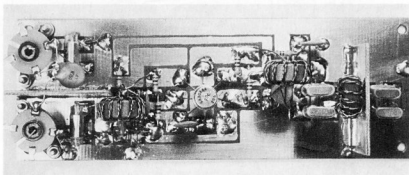
For those with sheetmetal working facilities, a suggested form of construction was shown in Part 1. A chassis area of about 330 x 270mm, and front and rear panels of 330 x 155mm will be required. By placing the plane of the main chassis pan about 57mm from the bottom, it will be possible to accommodate the main receiver components upon the top side, and any converters underneath. If metalworking facilities are not available, there are several ready-made instrument cases available from several suppliers. One should be chosen with dimensions similar to those mentioned above.

The components for the RF amplifier, mixer/filter, IF amplifier, product detector/AF/AGC amplifier, VFO and calibrator are accommodated upon the copper side of home-made printed circuit boards. By using this method, considerable effort is saved in not having to drill the boards for components. Troubleshooting is made easier too, as tracks are easily traced, and components can be easily replaced. To delay temperature effects, the VFO circuit board and variable capacitor should be housed in a die-cast box measuring 65mmW x 120mmL x 40mmH, provided the variable capacitor can be fitted into the available space. The hole for the capacitor shaft must allow sufficient clearance so that the shaft does not touch at any point, otherwise annoying little variations in frequency can occur due to this noisy ground path. A 15pF capacitor may not be easy to obtain, so values have also been given on the circuit for the use of a more commonly available 100pF capacitor.

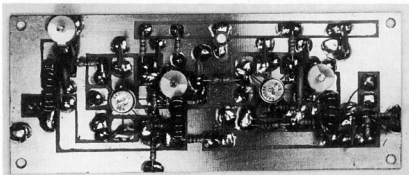
A simple Jabel dial may be used to display frequency. However, aside from a digital dial, a better approach may be in the method employed in the prototype: a 6:1 planetary reduction drive is fixed to a right-angled bracket as shown in the photo in Part 1, and connected to the VFO capacitor shaft via an insulated flexible coupler. A 140mm diameter disc is cut out from 18 gauge aluminium sheet, drilled, and sprayed with white undercoat paint. This will allow Letraset to be used marking the 10kHz dial divisions (resolution to 1kHz will be possible by interpolation). During final assembly, the disc is fixed to the raised boss with the screws supplied with the drive unit. A slot will have to be cut in the chassis to allow the disc to be positioned in the centre of the front panel. An arc shaped window must be cut in the front panel, the radius of which must be just less than that of the disc. The window should be covered by a piece of clear perspex, and held in place by three countersunk screws, two above and one below the window. It was found helpful to drill and tap the screw holes in the perspex to save the difficult job of placing nuts onto the fixing screws in the resultant tight space. The window is scribed down the centre with a vertical line to provide a pointer. A bush



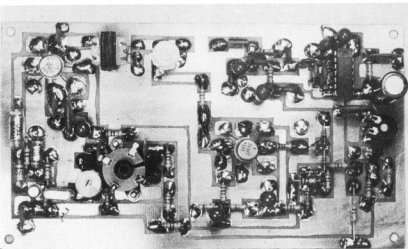
RF Amplifier



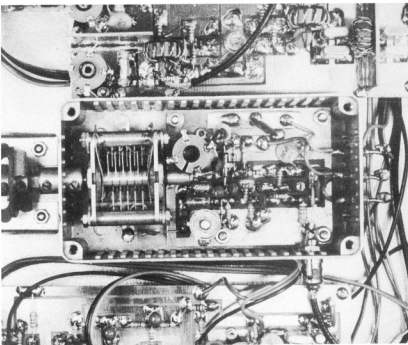
Mixer and 9 MHz Crystal Filter



9 MHz IF Amplifier



Product Detector, AF Amplifier and AGC Amplifier



VFO (Crystal Oscillator)

bearing must be placed in the front panel where the spindle shaft emerges so that hand weight is not transmitted to the reduction drive.

An eleven position, 3-bank wafer switch should be incorporated in the receiver, preferably on the lower panel area so that other bands, ie converters, may be added later when required.

The trifilar broadband transformers T2 and T3 are made as follows: Take three 350mm lengths of 24 B&S enamel wire. Lay them parallel to each other, twist them together at one end, and place that end of the group in a vice. Starting at the vice end of the group, draw

a cloth through them to remove any wrinkles. Now twist the other ends together and fix them firmly in the chuck of a hand drill. Turn the drill whilst keeping the wires taut until there are about three twists per cm, then give the drill a tug to set the twists, and remove the twisted group. Carefully thread the group through a Neosid 4327/2F25 core until there are about 11 loops. Leave about 2cm of wire at each end of the winding, and remove about 1cm of enamel from each lead. A multimeter (on ohms) can be used to identify the separate windings. It is essential that the end of one winding be connected to the start of another winding to form the centre tap for the secondary of T2, and the primary of T3.

T1 and T4 are made in a similar manner. Once again, it is essential that the end of one winding is connected to the start of the other winding to form the centre tap.

The single layer coils; L1, L2, L3, L4, L10 and L13 are wound upon Aegis 3510 coil formers. Shellac has been found to work well as a cement for this type of coil — even that in the VFO. It should be painted over the full length of the winding and allowed to dry before the ends are soldered to the tag ring provided. About 3cm of elastic (cotton removed) must be inserted with the slug to hold the slug in place.

ADJUSTMENT

If a signal generator is available, many of the assemblies may be built and tested individually. The product detector/AF/AGC amplifier board may be made first. If a frequency counter is available, the BFO frequencies may be set to about 9005kHz with L10, and to 9008kHz with C56. If a counter is not available, the BFO frequencies can be set by ear on a CW or SSB signal when the receiver is complete.

The IF amplifier may be made next. Upon completion and connection to the product detector, a 9MHz signal from a signal generator may be applied to the input via L5. A fairly large signal will probably be necessary at first. With adjustment of C21, 25 and 32, the generator level should be decreased. With the IF amplifier tuned to 9MHz, it should be possible to hear a 1 microvolt signal.

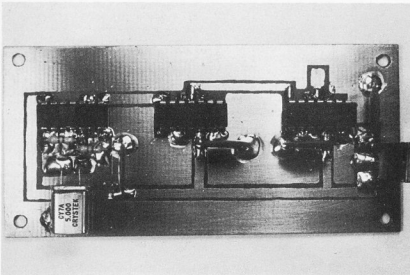
If a generator is not available, the connection of an antenna via the filter to L5 will allow adjustment of C21, 25 and 32 using whatever signal or noise happens to be on 9MHz at that time.

A preliminary adjustment of AGC set pot R49 will be possible at this stage; R49 should be increased until AGC action just begins and no more. This point will probably occur about one-quarter travel from the ground end of R49. The AGC pot can be adjusted later to provide what the user feels is satisfactory AGC action. S-meter sensitivity pot R64 should be adjusted so that the meter does not pin violently upon reception of a strong signal.

Upon completion of the VFO, its tuning range can be set with C68 so that it covers 10.8 to 11.0MHz with a bit to spare at each end. If a frequency meter is not available, the range may be set later using the crystal calibrator. The front panel calibration pot allows about plus or minus 5kHz swing to correct for inaccuracies in the converter crystals and to align the VFO for USB/LSB reception. The remaining assemblies; balanced mixer, RF amp and crystal calibrator may be completed in that order.

If desired, it will now be possible to haywire the assemblies together upon a scrap of aluminium sheet and check that the receiver works as a whole before wiring them into the receiver chassis.

L1-L4 may be adjusted with the use of a signal generator, or with off-air signals from an



Crystal Calibrator

L1, L2, L3, L4: 45 turns, 30 B&S enam. on Aegis 3510 coil assy.

L13: 20 turns, 22 B&S enam. on Aegis 3510 coil assy. (no slug).

L10: 20 turns, 28 B&S enam. on Aegis 3510 coil assy.

L6, L7, L8: 12 turns, 22 B&S enam. on Neosid 4327R/1/F25 toroidal core. L5: 2 turns 22 B&S on earthy end of L6. L9: 4 turns ct 24 B&S on earthy end of L8.

T1, T4: 13 to 14 loops, 24 B&S enam. twisted bifilar on Neosid 4327/2/F25 toroidal core.

T2, T3: 11 loops, 24 B&S twisted trifilar on Neosid 4327/2/F25 toroidal core.

Coils and Transformers

antenna. Some compromise will probably be necessary in their adjustment so that a flat sensitivity response is obtained across the band.

When the tuning range of the VFO has been established, the calibrator may be used to find the 50kHz points on the dial. With the perspex removed, it will be possible to place Letraset sheet in position from above and behind the panel and rub the figures onto the dial through the window opening. If a stable calibrated signal source is available, such as a BC221 frequency meter, a known frequency can be introduced into the receiver input and used to supply the 10kHz spaced check points for

calibration. Send a large SAE to the author for a copy of the circuit board artwork and location diagrams.

Photos — Peter Dalliston.
PARTS SOURCES

Coil formers, toroids, dial drive and many other parts: J H Magrath, 55 A Beckett St., Melbourne, and Watkin Wynne, 32 Falcon St., Crows Nest.

10k: 2k transformer, CA3028s, 5MHz crystal and many other parts: Ellistronics, 289 La Trobe St., Melbourne.

27MHz CB crystals and many other parts: Tandy Electronics.

AR

WHO IS THIS AMATEUR???



He is over 80 years old, of slight build but always very well groomed and dressed and he, without prompting, frequently took the part of host at Brisbane WIA meetings in the 1960s.

In the mid thirties he would sit in the vestibule of his workplace, Queen St Brisbane giving members lunchtime opportunity to collect and deliver QSL cards.

For many years he was a scoutmaster, and was also one of the most popular secretaries of the Queensland Division. In 1936 he was a Federal Councillor.

With Arthur, VK4AW and Pat VK4KB (Dec'd), he made the following Brisbane Telegraph headlines in February 1935 "Australian Wireless Record." "Shortwave Interplane Communication." "Success on 5 metre Band." "Early morning Experiments." Nearly two columns of story on this duplex radio telephony followed.

Recently he had the thrill of contacting Taupo, NZ, via the Brisbane 2 metre repeater from his room at Girraween Hotel Redcliffe with a 2 watt hand held.

He enjoys relatively good health and an occasional whisky. Yes he is Bill, VK4WX, VK4WT, 1932, and VK6WT.

AR

Note

John Moyle National Field Day Logs must be received by the Federal Contest Manager by the 23rd March, 1983, to qualify for any awards.

AR



EQUIPMENT REVIEW

Reviewed by, Bruce Bathols, VK3UV
From an operators point of view only

HAL CT2100 COMMUNICATIONS TERMINAL AND HAL KB2100 KEYBOARD

One of the latest pieces of equipment to pass across my bench was the HAL CT2100 Communications terminal and the HAL KB2100 matching keyboard.

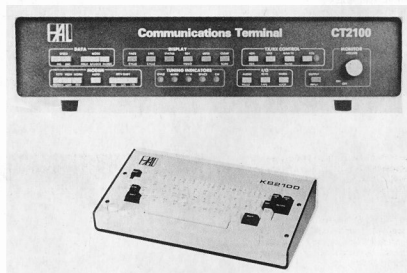
Here are some of the specifications as taken from the leaflet accompanying the terminal.

- Send or receive ASCII, Baudot, or Morse code
- RTTY and Morse demodulators are built-in
- RTTY speeds of 45, 50, 74, 100, 110, 300, 600 and 1200 baud — ASCII or Baudot
- Four RTTY Modems: "high tones", "low tones", "103 Modem tones", and "202 Modem tones"
- Three shifts for high and low tones (170, 425 and 850 Hz)
- Crystal-synthesized transmit tones
- Send and receive Morse code at 1 to 100 WPM
- Characters displayed on 24 line screen
- Choose either 36 or 72 characters per line
- 2 pages of 72 character lines or 4 pages of 36 character lines
- Split-screen for pre-typing transmit text
- Audio, current loop, or RS 232 data 1/0
- Printers available for hard-copy of all 3 codes
- On-screen RTTY tuning bar plus LED indicators
- ALL ASCII control characters; half or full duplex
- Brag-tape storage of 8-256 character messages in MSG2100 EPROM option
- Two programmable HERE IS messages

The station transceiver used for testing was the ICOM IC720A for HF, and the Icom IC290A for VHF. All tests were conducted using AFSK only, although it would have been a simple matter to wire up the FSK facility on the IC720A. Only the RTTY 45 Baudot and CW functions were tested, however other Baudot speeds and ASCII codes are an integral part of the terminal (see specs).

RTTY REPORT

Having had some previous experience with RTTY computer terminals, it did not take long to interface the HAL terminal to the HF transceiver. As one would expect,



the terminal is no toy and care must be taken to ensure the correct connections are made.

A very comprehensive instruction manual gives explicit detail on the unit's operation and capabilities.

To the newcomer to this type of equipment, there is a special section in the manual for those that cannot wait to read the manual fully, and gives basic instructions for hooking up the terminal to receive signals in the interim.

After satisfying oneself that all appears to be in order initially, it is then strongly recommended that you sit down quietly for an hour or so and read the operations manual thoroughly. It is a bit like the old adage "If all else fails, read the instructions first". So HAL have included the initial

testing chapter for the impatient. Full marks to HAL for that facility.

After becoming fully accustomed with the terminal, and also soldering up the various connectors (supplied) required for the audio and switching functions, I started looking for weak RTTY signals on 20 metres. The terminal performed admirably and printed up 100 per cent copy from signals which were barely audible to the ear.

The built in tuning indicators were particularly sharp, and in conjunction with the passband tuning system of the transceiver, excellent rejection of adjacent interfering signals was made.

Signals well into the noise floor were printed perfectly and no copy was lost.

Wrap around half screen facilities are included and enable the operator to commence typing a reply into the buffer memory while still receiving the other station. If a quick break was needed in response to a query while typing up the next reply, the buffer could be by-passed at the push of a button, the special query replied to, then back to receiving and

To gain any satisfaction from RTTY you must possess a very stable receiver, as the passband in the RTTY terminal is very narrow, and a few hertz off the operating frequency will result in garbled or nil copy.

Coming back to reality for a while, and to the hand sent code showed up the usual faults with computers and CW reception. I have never been a great advocate for computers and CW reception, and unless

One would be hard pressed to find any fault with the HAL terminal and keyboard. Although not the cheapest unit on the market, the extra facilities it provides is more than justified. The test units were supplied by EMTRONICS, 649 George Street, Sydney NSW 2000, telephone (02) 211 0531, to whom enquiries regarding price and delivery should be made. **AR**

AMATEUR RADIO, March 1983 — Page 15



NIGHT TIME VHF PROPAGATION

A semi-theoretical assessment of the mechanisms involved with support from the author's experience over four years of operation in Darwin (a VHF DXer's paradise)

1. THE NIGHT TIME IONOSPHERE

The ionosphere is generated by ultra violet radiation from the sun ionizing (or detaching electrons from) rarefied gases in the upper atmosphere. Because of the spectrum spread of the ultra violet radiation striking the upper atmosphere there is a tendency for ionization to occur in several different layers. The extent of the ionization is dependent upon the intensity of the incident radiation.

The ionosphere is also affected by charged particles generated in solar flares on the sun which arrive about a day after a major flare. These particles are deflected by the earth's magnetic field towards the poles and disturb the upper layers of the ionosphere.

Because of the sun being overhead the geographic equator at the equinoxes, it might be expected that the density of ionization would be at a maximum over the equator at these times. Actually two maxima occur and these are centred not about the geographic equator but over the line of zero magnetic dip, or the geomagnetic equator. These maxima begin to form in the morning and a pronounced valley between them becomes observable by noon and lasts till after midnight.

The maxima do not move north and south with the seasons, but with the migration of the sun in summer and winter the system becomes unbalanced with considerable differences between the high density areas which form in the regions approximately 10° to 15° from the geomagnetic equator.

The influence of the earth's magnetic field is marked. Not only are the maxima symmetrical about the magnetic equator, but the ionosphere is upset by magnetic storms and influenced by changes in the magnetic field. On magnetically disturbed days the high density areas tend to be closer to the magnetic equator.

The earth's magnetic field in space is not a neat dipole field but is compressed against the earth on the sunny side by the solar wind and is extended far into space on the side away from the sun. The earth and its ionosphere rotating within this field thus encounter a rapid change after sunset. The resultant dynamo action sets up strong electric fields, the lower levels of the ionosphere are sucked up, and the upper levels bulge outwards and reach a maximum about two hours after sunset. The turbulent regions then subside and high density irregularities then align themselves with the earth's magnetic field.

This phenomenon is observed on vertical incidence ionograms as "Spread F". The size of the irregularities is not accurately known but they are thought to be in the order of 10m wide and 1km along the magnetic field lines; larger areas may also exist at the same time.

2. 144 MHz PROPAGATION MODE

There has been much discussion recently about the propagation mode of VHF trans-equatorial signals and I am not in a position to comment on these theories but the following theory fits my experiences reasonably well.

Two aspects need consideration; one is the mode of propagation through the ionosphere and the second is access to or transition from this propagation medium.

(a) Ionospheric Propagation

It is generally accepted that in the evening, VHF signals are propagated across the equatorial regions by guidance between field aligned irregularities along ducts.

This guidance across the equator can be likened to a "sheath" of fibre optic filaments extending to each side of the geomagnetic equator. The "sheath" terminates in a "transition zone" permitting access to the ends of the "fibres" by VHF signals. Once a signal is inside a "fibre" it is trapped until it comes to the other end. Access at intermediate points is prevented by the lack of a suitable "transition zone".

In real terms this guidance is probably in ducts, large waveguide-like structures created by the alignment of ionospheric irregularities by the earth's magnetic field. The requirement for guidance is related to specific ionization densities and abrupt changes in ionization density at the edges of the duct.

The path length depends upon the spread of these irregularities either side of the geomagnetic equator, the maximum propagated frequency on the ionization levels and the gradients present in the irregularities.

Seasonal variations in observed propagation would be due to a non symmetry of ionization on either side of the geomagnetic equator.

(b) Transition Zone

In order to gain access to the ionospheric propagation medium across the equator, access to the ends of the ducts is required. It has been suggested that this transition is simply a matter of entering the ducts tangentially and this can be predicted

geometrically by the height of the F layer in which propagation takes place and the area in which a transition zone occurs.

The area in which a transition zone would occur is related to the spread of sufficiently dense ionospheric irregularities from the geomagnetic equator. It has been shown that on magnetically disturbed days the two "bulges" of ionization on either side of the geomagnetic equator are closer together. It can be assumed then that the transition zones in the evening move similarly in response to changes in magnetic disturbance.

The path length of propagation in the Darwin-Japan circuit is much less than the Athens-South Africa circuit and I assume that this can be related to both the spread of the two transition zones and the F layer height at which the ducting of signals occurs.

I do not rule out the possibility of another mechanism for accessing the ducts however.

3. DISCUSSION ON 144 MHz PROPAGATION

(a) Limited area of Reception

The statistical base for determining the geographic limits of propagation of amateur signals from Japan to Darwin is very good because of the large number and distribution density of amateur operators in Japan. On the circuit described the maximum easterly deviation from north-south has been found to be 400 km over a path length of 5000km. Tests run with stations to the north west of Japan in Korea have failed to establish propagation and similar results to the south in Okinawa have also failed.

(b) Focusing of Signals

On many occasions focusing of signals to very small areas within the overall geographical area has been observed. A general drift of focusing from east to centre has similarly been noticed with contact being established with the eastern most stations (in JA3) early in an opening.

(c) SSB Signals

The doppler spread of signals experienced in the Africa/Europe sector is not as apparent in the Australia/Japan Circuit and almost all contacts were established using SSB at perfect readability.

On a small proportion of openings intelligibility at the beginning of an opening

was impaired by an "auroral like growl" rendering CW almost uncopyable but this abated after about 15 minutes and strong relatively stable conditions resulted. Marginal openings do not suffer this signal quality degradation, with SSB being copyable immediately.

(d) 144 MHz Propagation without 50 MHz propagation.

Propagation has been experienced on 144 MHz on a few occasions when signal levels on 50 MHz were severely reduced. However on these occasions amateur stations in southern Australia were always experiencing enhanced 50 MHz propagation at the time. I believe this to be the result of high ionization levels preventing access of 50 MHz signals to the transition zone while 144 MHz signals can penetrate the ionosphere. This I believe is a result of enhanced spread of the ionized areas on magnetically quiet days.

(e) Variable Flutter on signals

Prediction of an imminent opening at 144 MHz to Japan by means of the depth and level of flutter on 50 MHz signals received from stations in the 144 MHz propagation zone in Japan can be accomplished. Signals from other areas in Japan do not have the same flutter. This indicates to me that the propagation mode at 50 MHz is different to that for 144 MHz, and I suggest that there are in fact three forms of enhanced VHF ionospheric propagation observable in equatorial areas in the evenings.

(i) Evening type TEP

The propagation of 50 MHz signals from various parts of Australia to Japan in the evening at various angles to the magnetic field can be adequately described as evening type TEP.

(ii) TEP Ducting

The propagation of signals by means of ducts formed by field aligned irregularities (FAI) from 50 to above 144 MHz appears to be different from evening TEP propagation. The path geometry requirements are different, and different flutter characteristics occur on the received signals.

(iii) Night time equatorial F2

The existence of propagation with less flutter than that of normal evening type TEP signals, between Darwin and such places as Guam (KG6), Papua New Guinea (P29), Solomon Islands (H44), Indonesia (YB) Christmas and Cocos Islands (VK9) etc on a regular basis at extremely high signal levels, indicates F2 single hop propagation.

I will return to 50 MHz propagation later.

(f) JA "Beacons"

Many paging transmitters using continuous carrier and tone modulation are received in Darwin between 146.48 and

146.82 MHz coincident with JA amateur signals. In practice I always listen to a 146.810 MHz beacon to be aware of 144 MHz openings. These beacons are of high power level at good locations and are always observable shortly before and after JA amateur signals on 144 MHz. The beacons appear to be clustered about 146.5 and 146.8 MHz with as many as 30 different transmissions being observable.

4. PREDICTION OF 144 MHz OPENINGS

The criteria for 144 MHz propagation on the Australia — JA path are:—

- (1) geographical position with regard to the geomagnetic equator,
- (2) Seasonal variation, peak times March and September.
- (3) Daily time around 2100 local
- (4) Magnetically quiet day, K index less than 3 on the WWV solar/terrestrial indices report at 18 minutes past the hour.
- (5) Solar flux greater than 150.

A noticeable variation from normal 50 MHz TEP flutter rates would indicate the area of possible contact.

5. 50 MHz EVENING PROPAGATION

(i) TEP RELATED F2

The existence of VHF propagation at 50 MHz in the mid to late evening between stations located either side of the geomagnetic equator has been observed for many decades and is well known to VHF operators. Not so well known is the occurrence on a regular basis of night time F2 propagation in the tropical zone.

Propagation between stations in the equatorial zone, at various angles to the magnetic field including perpendicular, occurs regularly. In the Japan — Australia sector paths such as Guam — Japan, Hong Kong — Guam, Japan — Philippines, Japan — Malaysia, Australia — Guam, New Guinea, Indonesia, Solomon Islands, Malaysia, Cocos Island, Christmas Island exist from time to time.

The path from Darwin to Guam has very high reliability and occurs whenever evening type TEP to Japan is observed. Similarly the path from Darwin to Malaysia and the Philippines has high reliability.

These paths can exist without evening type TEP being observed particularly on magnetically disturbed days. This indicates the establishment of suitable TEP conditions in only the southern part of the TEP circuit.

Propagation to stations which lie nearer to perpendicular to the magnetic field at Darwin ie. New Guinea, Solomon Is., Indonesia and Cocos and Christmas Islands, occurs less regularly and is linked to the spread of high levels of ionization away from the geomagnetic equator.

Ionization can reach very high levels as is indicated by very short skip openings to West Irian from Darwin.

The propagation medium is identified as TEP related F2 by flutter which is less marked than normal evening type TEP to Japan and its correlation to evening type TEP by seasonal and diurnal occurrence.

I believe that this TEP related F2 propagation is linked more precisely with the formation of FAI ducting and the signals are in fact reflected back from the underside of this ducting.

Because of the westward extension of the night time TEP zone caused by the setting sun, propagation using multiple hops along this tropical band occurs. I have observed multiple hop F2 propagation to India and Nepal, Gibraltar and by coupling into the day time F2 ionization peak, to French Guyana in South America long path via the night side of the earth.

(ii) Evening type TEP

I have previously mentioned that I do not consider FAI to be responsible for night time TEP at 50 MHz. There is considerable evidence that large scale structures exist in the night time tropical ionosphere concurrent with the smaller FAI and I suggest that it is likely that these are responsible for evening type TEP at lower VHF frequencies.

6. RELATIONSHIP BETWEEN THE GEOMAGNETIC EQUATOR AND DAYTIME F2 VHF PROPAGATION.

As mentioned previously, in the morning of days during the sunspot cycle peaks, bands of enhanced ionization form at about 10 degrees either side of the geomagnetic equator. These bands of ionization form "freeways" which support 50 MHz propagation during the day. The paths between Europe and the Caribbean and Japan and South America follow these paths.

The night time path from Darwin to French Guyana follows this "freeway" from India over Israel, Italy, Gibraltar and across the Atlantic to South America. Propagation to India is by double hop TEP related F2.

Propagation from Southern Australia to the Caribbean and the United States uses these freeways but crosses them at an angle and requires additional F2 or Es reflections at either or both ends of the path.

It is a very interesting and worthwhile study to plot the geomagnetic equator on the globe and centre your own location on one axis and its antipodes on the other. By observing where paths follow a course parallel to the geomagnetic equator optimum VHF F2 paths can be determined.

7. CONCLUSION

This article is not meant to be a definitive scientific report but rather a summary of special VHF propagation I have observed while in Darwin for the last few years.

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TWO TONE TEST OSCILLATOR FOR SSB

A L BUTLER VK5BR

18 Ottawa Ave. Panorama, South Australia, 5041

A two tone generator is a useful item to enable linearity and power output checks on the SSB transceiver and linear power amplifier. This article describes a two tone generator, built by the author, using tone generator devices FX205.

The FX205 is a device which generates, digitally, a stable staircase waveform simulating a sine wave (refer Figure 1). Low distortion is achieved by the addition of a simple RC sine shaping filter. Performance tests carried out by the author on the FX205 have produced the following results:

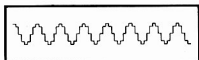


Fig. 1: Tone Generator FX-205 Output Waveform.

FREQUENCY STABILITY

- Less than 2% change over a temperature range of 20°C to 65°C.
- Less than 2% change over a supply voltage range of 12 to 15V.

OUTPUT VOLTAGE STABILITY

- No noticeable change over a temperature range of 20°C to 65°C.
- Output voltage is proportional to supply voltage, (ie output voltage stability is dependent on supply voltage stability).
- Using frequency adjustment control (RV1 in Figure 2) over its full range, maximum output voltage change is within 0.5 dB.

(NOTE: This is without the filter which does not have a constant attenuation versus frequency characteristic.)

Using the FX205, as shown in the circuit of Figure 2, an output voltage range of 3.5 dB is provided by the adjustment of RV2 and a frequency range of 10 to 1 is provided by the adjustment of RV1.

Frequency range of the FX205 is 30 to 5,000 Hertz.

$$C_1 = \frac{0.82}{f_{LOW}}$$

$$f_{HIGH} = 10 \cdot f_{LOW}$$

where C_1 is expressed in microfarads and f is expressed in hertz.

Frequency range of the RX205 is 30 to 5,000 Hertz.

SINE SHAPING FILTER

The circuit of the complete two tone generator is shown by Figure 2. Sine shaping is achieved by the two filter sets labelled C2, C3, R4, C4, R5, C5. The filters

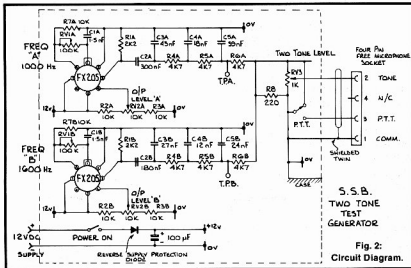


Fig. 2: Circuit Diagram.

are set for 1,000 Hz and 1,600 Hz respectively to give a distortion less than 1%. If different frequencies are required with similar performance, the following design criteria are applied:

$$C_2 = \frac{300}{f}, C_3 = \frac{42}{f}, C_4 = \frac{19}{f}, C_5 = \frac{38}{f}$$

where C is expressed in microfarads and f is expressed in hertz.

The values shown in Figure 2 are in nanofarads (nF) in case there is some confusion.

Note that each filter is designed for one frequency operation. If variable frequency operation is required, a low pass filter with constant attenuation in the passband is needed. The predominant harmonic is the seventh and hence the cut off frequency must be less than seven times the lowest frequency of operation with tuning frequency range restricted to about 6 to 1.

TONE COMBINATION

The two tones are combined in R8 and RV3 and wired to a standard microphone free socket to replace the microphone feed to the transceiver. A switch to replace microphone press to talk is also provided. Two tone output level is set by RV3.

ASSEMBLY

Layout of the generator unit is not critical but it is advisable to enclose the unit in a

metal box as a precaution against feedback from radiated RF. Furthermore, the output is at low microphone level and this should be shielded to prevent noise pick up.

The author assembled the components on a vero board and housed this in an inexpensive 13 cm x 8 cm x 5.5 cm aluminium box which was available at the local electronics store. RV1A-B and RV2A-B are trim pots mounted on the board. RV3 and the two switches (power and PTT) are fitted as external controls. The 12V supply shown in the circuit diagram is nominal. A supply between 10V and 15V is within the FX205 specified tolerance. (The unit constructed, actually worked well from a 9V battery.)

ADJUSTMENT

The individual tones are monitored at TPA and TPB with the PTT switch set to short circuit RV3. Frequencies are set at 1,000 Hz and 1,600 Hz respectively by adjusting RV1A and RV1B and measuring at TPA and TPB with a frequency counter or reference oscillator and CRO. RV2A and RV2B are set for equal output voltages at TPA and TPB.

Frequency must be set before adjusting levels as the attenuation of the shaping networks varies with frequency.

Once set up, no further adjustment is necessary and two tone output level is set by RV3.

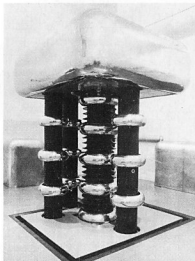
THE CAMBRIDGE UNIVERSITY 600 kV HIGH RESOLUTION ELECTRON MICROSCOPE

Adapted from Cambridge Press Release
Article courtesy Art & David Smith VK3UX & VK3ZSS

A 600 kilovolt electron microscope, designed to provide image resolution to the atomic level, was opened by Sir James Menter on 18th May, 1979. It has been financed by the Science Research Council and the University of Cambridge.

The main role of the new microscope is to examine a wide variety of crystalline and amorphous metals and semi-conductors, at sufficiently high magnification and resolution to make visible detail on the atomic scale.

Although this is not the first high voltage electron microscope to be designed for high resolution, it has several unique features which make it the most flexible and versatile. The electron gun employs a lanthanum hexaboride cathode which gives such a high brightness that images can be observed on the viewing screen even at a direct magnification of 500 000 times, making focussing and correction of image astigmatism much easier. The microscope, which with the electron accelerator weighs some 7 tonnes, is supported on a three-point suspension system to reduce the

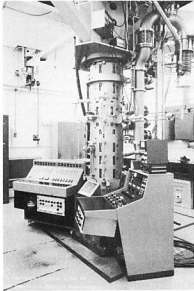


Cambridge University 600 kV High Resolution
Electron Microscope High Voltage Accelerator.

effect of site vibrations. The high voltage generator, supplied by the firm of Emile Haefely of Basel to a high specification, has been further stabilized to better than one part in a million by electronic means designed and constructed locally. The basis of the microscope proper consists of the column of electron lenses of the EM-7 microscope developed by AEI. That microscope was partly based on the original 750 kV microscope built in the Cavendish Laboratory in the 1960s. The most important lens, the high-power objective, has been modified to improve its imaging performance. Circuits of the extra high stability required for the lens current supplies have again been made on site.

Preliminary investigations, made by Dr D J Smith VK3ZSS in collaboration with specialists in Cambridge and elsewhere, have already demonstrated the potentialities of the new microscope in a range of problems of considerable scientific and technological importance.

AR



Cambridge University 600 kV High Resolution
Electron Microscope.

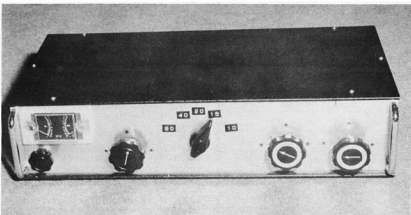




NOVICE NOTES

A JUNK-BOX ATU

As promised last month we have details of an ATU that you can build from your junk-box.



Completed Junk-Box ATU.

Apart from a minimal price the ATU features a wide tuning and matching range and a frequency-independent VSWR and power meter that indicates forward and reverse power simultaneously.

THE CIRCUIT

The tuner circuit is a pi coupler, made from the components of the PA circuit of an old valve AM transmitter, with an additional tuning capacitor in series with the antenna.

The large variable capacitor C1 allows the transceiver to be tapped up the tuned circuit. The tapping on L is set according to the band in use and C2 and/or C3 used to tune to resonance.

TUNING-UP

To tune-up, select an unused frequency close to your desired operating frequency. Set L to the band in use. Turn C1 to half mesh and set C2 and C3 to minimum mesh. Apply 1 to 10 watts of CW and adjust the sensitivity control of the VSWR meter to indicate half scale. Tune C3 for minimum reflected power. Adjust C1 and C3 until reflected power indicates zero.

If a dip in reflected power is not found in the first instance set C1 to a different position ($\frac{1}{4}$ or $\frac{3}{4}$ mesh) and tune C3 again. If no dip can be found set C3 to full mesh and adjust C2 and C1 for a dip. Sometimes changing the tap on L will give better tuning. For example when on 80 metres the tap may be set to 40 metres.

Once the optimum settings have been found for each band record them on a card and tape this card to the top of the ATU for future reference.

THE VSWR METER

The VSWR meter is the transformer coupled type. All VSWR meters use a directional coupler usually one of two common configurations. The most common uses two parallel coupling lines. It is frequency sensitive.

That is for a given indication more power is required as the frequency is lowered. The coupler described here gives the same indication for the same power for frequencies from 3-30 MHz.

Transformer T1 gives a voltage generated by the current in the line. Fig. 2 shows how

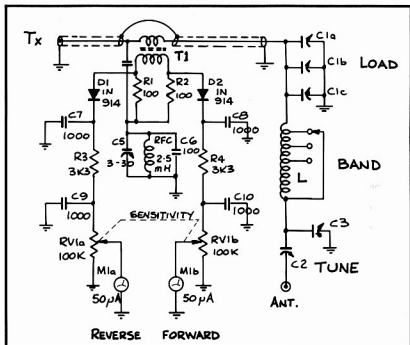


Fig. 1 — VERSATILE JUNK-BOX ATU

L — Gelsco AM Tx Tank Coil; C1 — Three gang air-spaced tuning capacitor from valve radio 20-1050 pF; C2, C3 — Air-spaced valve transmitter PA tuning capacitors 270 pF 2kV minimum; R1, R2 — 100 Ω 1 watt carbon resistors (or low inductance alternative); M1 — Twin VU meter, 50 μ A.

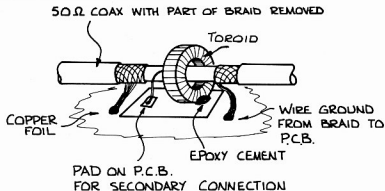


Fig. 2 — DETAILS OF TRANSFORMER T1

Torroid Core — Neosid 4327R/1/F25/EC; Primary — 1 T made by coax.; Secondary — 40 T #26 gauge enameled copper wire.

the coaxial line is opened to form a 1 turn primary for T1. Capacitor C4 couples the line voltage to the detector circuit. D2 rectifies the combined signal producing a DC voltage proportional to forward power. C8, R4 and C10 form a filter circuit. A look linear potentiometer is used to set a convenient indication on the meter, M1(b).

If there is no reflected power the combined voltages from T1 and C4 applied to D1 is then zero. If there is some reflected power the diode D1 rectifies this, C7, R3 and C9 smooth this and the result is indicated on M1(a).

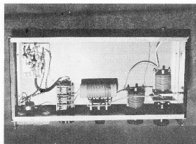
By using an inexpensive twin VU meter and a ganged potentiometer for RV1 both forward and reverse power are simultaneously displayed.

If the sensitivity control is graduated it can be calibrated to provide power measurements as well as VSWR measurements.

R1 and R2 provide terminations and DC returns for T1. A network consisting of an RFC and a shunt capacitor is used to adjust the frequency response of the system. To adjust C5 replace the ATU with a 50 ohm dummy load and with power applied at say 14 MHz (or 21 MHz if you can't produce 14 MHz energy), vary C5 for minimum reflected power indication. Check at 3.6 and 28 MHz and, if necessary, make any small compromise adjustment for equal (if not zero) reflected indications. Use the maximum sensitivity for final adjustments.

CONSTRUCTION NOTES

A metal case is recommended for housing the ATU components. The layout is not particularly critical. Note that C3 is mounted on a bracket and an insulating coupling used. This capacitor can be at a very high RF voltage. For RF powers above novice level C3 needs to be carefully chosen as the voltage across it can be many kV even at 100 watts of output. The photographs show the general arrangement I used. Other builders have used a square front panel and re-arranged the components accordingly.



Inside the Junk-Box ATU.

of the ARRL Radio Amateurs' Handbook. The unit shown in Fig. 4 acts as a 1:1 balun but is in fact a means of preventing any current flowing down the outside of the braid by effectively adding series inductance in the outside of the braid. Currents flowing inside the co-axial cable are not affected.

The core is salvaged from an old TV set. Although the core has been designed for low losses only to a few MHz, negligible loss occurs at 30 MHz.

With this unit any piece of wire from a mattress to a fence becomes a potential antenna.

73 de VK3AFW

AR

USING OPEN WIRE FEEDERS

In my unit I have left room for a balun to be installed at a later stage to allow balanced feeders to be used. For the present I prefer to put the balun at the antenna and use a coaxial feeder.

Two inexpensive baluns are shown in Figs. 3 and 4. The one shown in Fig. 3 is an air-cored unit described in the 1982 edition

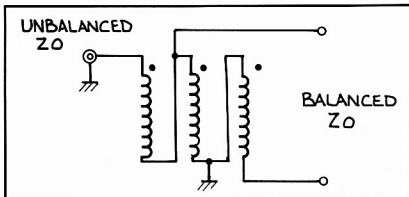


Fig. 3 — HF BALUN TRANSFORMER

Twelve turns number 12 formvar, (enameled) wire, trifilar close wound solenoid on 25 mm OD PVC former.

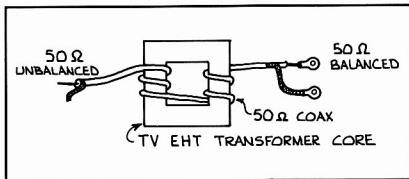


Fig. 4 — ECONOMIC WIDE-BAND BALUN

10 to 20 turns of RG 58 Cu type coax (for up to 100 watts).

ADELAIDE'S PARTICIPATION IN THE DEPARTURE OF ANACONDA II

Ian Hunt VK5QX

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Preparation of a yacht for going to sea involves attention to a great many details, but just how much more detail is involved when that seagoing voyage is in connection with a major expedition to a small island over 4000 kilometres distant in Antarctic regions.

In this article it is hoped to give you some idea as to the preparations made for the Adelaide departure of the *Anaconda II* on the first leg of its trip from Adelaide to Perth prior to heading south west to Heard Island.



Preparing the Yacht

First there is the preparation of the yacht itself. With a myriad of ropes, tackle, winches etc., as well as such things as pumps, sails, engine, refrigerators, generating equipment and a host of other items to be taken care of. Most of this work was carried out by the yacht's 'crew' as distinct from either mountaineers or radio amateurs, however, when aboard it is certainly often a case of 'all hands on deck' and you work together even at dock-side for a common purpose.

The skipper of the *Anaconda II*, Josko Grubic supervised all activity in his inimitable way, answering questions from several different sources seemingly at the same time, bullying here, cajoling there to get the necessary work done in the most effective way. At the same time he was, no doubt, busy within his own mind planning for the whole of the voyage ahead and yet still so observant to detail that he picked up many little points which seemed to have been overlooked by others, even when they had been working on the very equipment referred to.

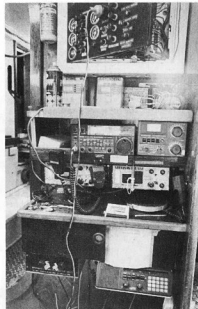
The amateurs first assignment was to check out the radio gear. This equipment comprised an Icom IC720A which fed via a Kenwood antenna coupler to an antenna which utilized a piece of solid wire running through the hull of the yacht to feed the base of a sixteen feet fibreglass whip, mounted at an angle of about 30 degrees



Josko Grubic, the Skipper

on the stern. A dummy load and power meter check soon showed that the output of the transceiver was up to par. A visual inspection of antenna connections indicated the expected type of corrosion which occurs in a salt air environment. At the same time the antenna systems for the marine radio equipment were inspected with similar problems noted. Quite some hours were spent to good effect cleaning up the offending connections and a definite improvement in operation was noted in each case. Carrying out of this work entailed some time spent down inside the hull of the yacht in a compartment in the stern where the antenna cables passed through and where remote couplers for the marine gear were located. Time was also spent making repairs to the DF equipment, fixing up and replacing various electrical leads, and assisting in the installation of a new radar and a second satellite navigation system. (It would appear that all the units have worked OK as at the time of writing this comes the news that the expedition

had landed and were operational from Heard and the radio gear for the amateur bands on the yacht had continued to keep the expedition in touch with the world on the voyage.)



Radio Equipment on board *Anaconda II*

Whilst the electronic component was being taken care of much other activity was going on. Those members of the expedition who were embarking at Adelaide had arrived and were bringing aboard various items of personal gear, other equipment and large quantities of foodstuffs. One wondered where this mountain of a miscellaneous nature could possibly be put. The two 4 kVA diesel generators for powering the amateur station on the island were hoisted aboard and stowed on the floor adjacent to a set of sleeping bunks on the starboard side and lashed down. The bunks seemed to actually disappear amongst the load of equipment steadily coming aboard.

Gradually an appearance of tidiness began to take shape in the interior of the



More Supplies arrive

yacht and members of the expedition turned to checking their last minute personal preparedness and the purchasing of any extra items required for their first leg of the journey.



Stowing Supplies in the Galley

On deck Josco and his crew seemed to have the mess of ropes, tackle etc., fairly well under control, whilst all lent a hand to bring on board a massive sail to be bagged and stowed away in the sail locker. The sails are carried in huge canvas bags which are colour coded to indicate just which type of sail is contained therein. Above the entrance to the sail locker lists showing this coding are displayed. Slowly everything was falling into place!

On the night before departure a public presentation took place at a theatre in the city. This presentation was very well



The Sail Locker

attended and allowed a last minute opportunity for the sale of Heard Island Expedition 1983 tee shirts and other mementoes. The presentation included an excellent static display of various items of survival gear, cold weather clothing, special tents, food packs etc., as well as a typical modern amateur radio transceiver and a collection of QSL cards. During an interval refreshments were taken and the South Australian WIA Divisional Council participated by helping with both supply and preparation of much of the supper provided.

During the course of preparations on the yacht there were visits by various representatives of the media including quite a few television cameramen. One visit of note was from the Mayor of Port Adelaide Mr Roy Martens from which port the yacht sailed. Mr Martens wished all members of the party well on their trip and presented the group with an official letter from himself, representing his council and constituents (see page 43, Feb AR). In return Mr Martens was presented with an expedition Associate Membership Certificate and some other items of interest.

Some of the last minute items to be taken care of were a quick taped interview with David VK3DHF for the VK5 Divisional broadcast and a fast run to the city to pick up the spares ordered for the Lombardini diesel engines which power the generators, and then it was time for departure.



Navigation Room

And so our part had been played, for now we were mere spectators, just waiting to hear word of how things were progressing. A regular radio schedule organized with Dave operating as VK3DHF Maritime Mobile was conducted and it was noted with some relief that the radio seemed to be operating as expected. And so a constant track of our adventurers was kept between Adelaide



Bon Voyage

and Perth. No problem was encountered with the radio schedules during this 'shake-down' part of the trip and these schedules were run completely in the clear so that others could follow the progress being made. No doubt as the story of the adventure of Heard Island Expedition 1983 unfolds, others who have been personally connected with later aspects to the expedition will put pen to paper and you may see it in the pages of Amateur Radio magazine.

Thank you to all those local people of Adelaide too numerous to mention individually for helping in so many ways with preparations prior to departure and also to local suppliers who provided donations of food and material towards the expedition. South Australia is of course proud that a South Australian yacht was chosen for this adventure, and are also happy to have been able to play at least some part in helping a well conceived plan to be brought to fruition. In the quieter moments it is often pondered just how did they manage to get all that extra gear aboard the yacht in Fremantle.

Photos by — Warwick Kemp

YOU KNOW IT'S YOUR DAY FOR NET CONTROL WHEN ...

from Pike County ARC Capacitor

1. The weather forecast is for lightning storms all day.
2. Your wife/husband says, "Tonight, let's go out to eat!"
3. You wake up and the power is off.
4. Your child has a special event that only you can help out.
5. Your auxiliary generator wasn't returned from a Field Day and the power is off.
6. You took for the rig that you took to the QSO party last night as you need it in 30 minutes.
7. The newspaper lists tonight as the last night to see the show you promised you'd take the family to see.
8. The pregnant dog starts to make a nest under the shack table.
9. The linking system to the repeaters suddenly starts malfunctioning.

Reprinted from: ARMS Bulletin — 8 '82

AR



HOW'S DX

Ken McLachlan VK3AH

Box 39, Mooroolbark,
Vic. 3138

On reading the excellent column "POUNDING BRASS" in February's issue of AR, reminded me of the multiple calls made by various stations to contact a much wanted transceiver operator. Stations have been heard repetitively yodelling the DX station's call and transmitting their own call only ONCE.

A much wanted station is more than aware of his or her alphanumeric allocation and this habit causes considerable QRM, frayed tempers and places undue strain on the receiving operator. The caller suffers fatigue and also extreme frustration by adopting this practice. Short, precise, phonetically punctuated single calls enhance an operator's chances of making the log.

Short repeats of your allocated call sign with the emphasis on the VK generally brings expedient results. So in 1983 set an example and change your calling habits so that YOU may bring home that valued contact. If the DX station is handing out genuine reports of 5X9 and your reception of his signals are 3X3 signals, when his beam is in the other direction, your calls are QRMing valid contacts. ASK any station that you have a strong reception with, to make a QSP on your behalf, that a VK is hearing and is on frequency. Many stations will hear your request and most will QSP that a VK is on LINE. Please remember, the initial contact, brevity please, unless the other station is on for a chat, as many others are waiting and that amateur radio is a friendly hobby.

YI1BGD

The complaint of extreme delays in the receipt of cards from YI1BGD as per January's column were numerous. A photostat of the notes concerning the article was forwarded to the club concerned in early December. No acknowledgement of receipt, except by coincidence, a flood of cards to VK amateurs over the last few weeks. The "too hard" basket apparently has been emptied.

HOLIDAY DXING

A note from Bob, VK3AWN advises that he will be on holidays with his XYL, Mandy in the near future. Nothing really extraordinary about the holidays but the prefixes that Bob hopes to use will create much interest to many. Bob indicates that he will be looking for VK Novices from each QTH and hopes to check into the Caribbean, ANZA and 14.322 MHz Open House Nets.

The proposed itinerary is:

Call Expected Operating Dates
3D2RR 8-17 March
T2AWN 18-26 March

T30 * 26 March-8 April
T32 * 8-12 April
5W5EB 12-18 April

This is an all band SSB and CW operation, 10 thru 80 metres and 160 metre operation from Kiribati. Six metre operations are dependant on the acquisition of suitable portable equipment and will be announced by Peter VK3AWY. Direct QSLs with return postage and envelope will be handled by Alan, VK3DAK, PO Box 6, Newport, 3015 or to Alan via the Bureau.

NEW PREFIXES

Yet another new prefix to remember! The ITU have allocated T7 to the Republic of San Marino to replace the present 9A prefix. It is understood that the M1 will stay for the present.

The XO prefix heard around the bands last month is of VE origin and is to commemorate the "Jeu Canada Games" at Chicoutimi. QSLs to PO Box 212, Chicoutimi, Quebec, G7H 5B7, Canada.

Yet another group of changes come from Portugal. All CT operators may use optional prefix changes for the commemoration of World Communication Year and the following blocks have been allocated. January to March, CQ1 and CQ4. April to June CR1 and CR4. July to September, CS1 and CS4. October through to December will see the CU1 and CU4 prefixes being optionally used.

For prefix hunters, Alphabet Soup, as appeared in this column in December AR has had more taste added and will be very appetizing this year.

EQUATORIAL GUINEA

That obliging and happy operator Alberto, is back on the bands again, still signing 3C1AB and using 10, 15 and 20 metres. QSLs EA1QF.

DIRECT QSL INFORMATION

A number of requests for direct routes have been requested by VK DXers. Any information that is printed or given directly is checked from at least two different sources. All the information is given in good faith and no guarantee can be given as to its authenticity but it is worth a try to gain that valued card.

Please give QSL managers adequate time to reply, considering that they may have to wait for logs from countries that may have a very irregular mail service or in the case of the VKOHI operation the manager, VK6NE has to wait until the logs are returned at the end of the expedition. It is a help to all, if accurate UTC times and dates are used.

ABU AIL

G5ACI/AA managed some 4000 QSOs in the forty hours of operation from Abu Ail. The operators were Iris W6QL, OM Lloyd W6KG, Christian F0ECV and Jean F6BQ. QSLs will be 100% via YASME either direct or via the Bureau.

ANTIGUA

Three operators from North America hope to operate in the ARRL SSB contest on the 5th and 6th March. They intend to be ORV for a few days both sides of the contest. QSLs will be to the operators KR4C, K4LTA and WA4CDH.

NEW TEN METRE BEACON

Overseas news is that a beacon is due to be erected on Adelaide Island, using the call VP8ADE and should be commissioned in late March or early April. Frequency and technical details are unknown at present.

WHAT PRICE DXCC

A VK5 correspondent, has kept records of all the QSLs sent with such details as the QTHs, managers (if applicable), and most importantly the cost.

Well, achieving DXCC in the CW mode turned out to be quite expensive for this amateur. For the 40 cards received from 63 sent in 1982 directly to the stations or their managers, the IRC bill was not cheap. Forty x 3 IRCs at 65 cents each equals \$78.00, add to this the postage, card cost, envelopes etc. That is only for the cards received directly.

Now add the 23 cards that were sent, for the same period and no returns were forthcoming, the IRC cost was \$44.85. Some simple arithmetic gives the figure of \$122.85 without the extras. If you have kept accurate figures and they are similar, I am sure other readers would like to hear of your experiences or rather your costs.

To the newcomers of the "paperchase", take heart. If you are very patient, the WIA QSL Bureaus are very economical and it is one of the many benefits offered to members of the Institute.

KERGUELEN ISLAND

Mike, FB8XAB, doing a stint at the weather station, offered his hospitality to the VKOHI expedition on the maxi yacht Anaconda II whilst enroute to Heard Island. This gesture allowed the party of eighteen to gain their "land legs" prior to the last leg of the voyage and the rigorous landing ahead. Mike's station should be active on ten metres in the near future.

DX JAUNTS

Dieter, DK9KD, renowned for getting DXpeditions on the road has written to

advise of two expeditions scheduled for this month.

ST PETER and ST PAUL ROCKS

In an effort to assist those that did not get in the log last time the Cologne DX-group will be activating this country from approximately the 4th to the 8th of March. Call signs on the trip include DK9KX, DJ9ON, DF9KH, DL8CM and one PY amateur. Watch for PYOS on the usual frequencies.

SPRATLY ISLAND

DJ6SI and DJ3NG will try to activate this lonely area commencing around the 22nd or 23rd of March with activity for approximately five days.

HONOURS

Tom, VR8TC, was awarded an MBE in the Queen's New Year Honours List. The citation was for his untiring efforts as the island's radio operator. Congratulations Tom.

HEARD ISLAND

The Anaconda AI successfully landed the VK0HI expedition at Atlas Cove on the island. All equipment was ashore on the 22nd of January and the first contact was made by Hugh VK6FS with AI VK6CW at 12:52 UTC, on twenty metres. I was lucky to follow with a QSO to Dave VK0HI, the leader of the radio component of the expedition, and be the first in his log at 12:58 UTC. They were, at this stage, running "barefoot" and using the vertical antenna. This did not preclude JY3ZH being next in line and the multitude following. This expedition's success so far, is a magnificent start to WCY 1983, and a tribute to the dedication shown by the organizers that burnt the "midnight oil" for most days of last year.

UPDATING

Congratulations to David, VK3PBA who has contributed to these notes for a considerable period. David has upgraded and is now sporting the call VK3BY but is still contributing his novice news. Would any Novice operator like to contribute to the much read *Worked on the Novice Bands* segment of these notes to allow David more time to use his full call. Will someone please volunteer, so that other novice operators may benefit from your log?

CORRECTION

An important correction is that on Page 42, of February's AR where Chuck Brady's call sign VK0MD magically got exchanged for AI Fischer's very active call VK0CW. Unfortunately Chuck never used his VK0 call sign, having to return to the United States. AI has used his VK0CW call sign notching up many thousands of contacts at the time of going to press. Both the VK0HI and VK0CW stations QSL arrangements are in the capable hands of Neil, VK6NE for all places except North America and Japan. A must for a prompt reply is a self addressed envelope with appropriate covering postage. Cards received without

return envelopes will be processed last due to the extra work involved.

Apologies to anyone who has been inconvenienced by the typographical error regarding AI's VK0CW call sign.

ST. PETER & ST. PAUL ROCKS

This DX Country has eluded many VK's over the years and the last attempt in October was no exception. With hindsight it is probably easy to sit back in the comfort of the "shack" and expound as to how it should have been done and to criticise that such an operation should not be attempted without adequate research.

For an adventurous group to succeed with any expedition, they have before them a considerable amount of research to undertake including the absorbing and solving of problems that previous expeditions have faced and not to be overlooked are all allowances for the unpredictable "MURPHY'S" law that must be taken into account.

One such operation that took place in 1978 has been written up by Rolf Rasp, PY1RO. Actual excerpts from his lengthy and factual summary of the happenings of this trip are printed in the following paragraphs to give all VK DXer's an idea of some of the difficulties that can be encountered on such an expedition.

Rolf writes "I never really held much hope to ever go to this off the beaten track area of St Peter and St Paul Rocks until I ran across a marvellous group of French 'hippies' and their boat at Fernando de Noronha. During a chat with them and the usual questions regarding amateur radio such as 'Why do you come to this island to transmit?' — 'Because it is a separate country' — 'Are there any other such countries for amateurs around here?' — 'Yes St Peter and St Paul Rocks, but it is too difficult to get there.' — 'Why?' — 'Because there are no boats or aeroplanes going there regularly.' — 'Oh, in that case we can provide you with transport if you want.' It was that easy."

Rolf's experience, with these people who roam the world's oceans, mainly existing by the collecting and selling of sea shells, is one of many that have been shared by amateurs world wide, as the simple honest answers to inquiring minds from all walks of life have brought the utmost and generally unsolicited assistance to help an adventurous hobbyist attain his ideals.

Rolf lost no time in getting together a group of participants who could assist with equipment and another operator. The size of the vessel limited the number of operators to two, Jim, PY7BXC and Rolf himself plus the minimum crew of three, Vincent, the captain, his girlfriend Nadine and the navigator, Max.

No time was lost in establishing the charter and making firm plans to take advantage of the offer to use the seventy year old French sailboat "Doudo Diop" by her generous owner. Firm dates were made to join the vessel at Recife (on the east coast of Brazil). This would allow heavy equipment to be loaded on board and save costly air charges in freighting to Noronha.

Rolf remarks that "this was our first trip in



L to R Rolf, PY1RO, Jim, PY7BXC, Vincent, the skipper, Nadine, Vincent's girl-friend, Max, the navigator, seated at the operating position.

a sailboat and our fears of seasickness and being exhausted by the trip were luckily unfounded even though we took two hourly turns at the rudder and were in excellent spirits throughout the voyage. The trip was relatively uneventful, even though it was soon realised, that the schedule was not going to be kept due to unfavourable winds. The amateur fraternity were given constant updates by the use of the FT101E which was set up under the deck and the makeshift antenna of an eight metre wire attached to the mast.

"Our navigator, Max, because of the expertise in his field and constant observations regularly corrected course each day by energising the diesel motor for a couple of hours and sailing into the wind. On the fifth day he announced that we were twelve miles from our goal. We were unable to see them from deck level at this distance due to their height of twenty metres above sea level but if we climbed to the top of the mast we could view our destination. Max, was correct and we were in the right direction.



St Peter and St Paul Rocks as viewed from the approach of the "DOUDO DIOP".

"As soon as we had a clear view of the rocky outcrop, we knew we were in trouble, because the lighthouse, in which we hoped to set up our station, as it has been done ten years previously, had completely collapsed and was definitely unusable for our purpose. We were worried, as we had not thought to bring a tent for an alternative operating location. Anyway, we would think about this after landing.

"The final approach was made on diesel power into the wind. On arrival we found that about half of the fuel that was purchased on Noronha proved too dirty

and would have clogged the engine and thus had to be discarded. I'd hate to think what would have happened had we run out of fuel before our arrival.

"The first view of the rocks is true to their name, nothing but rocks. A few high spots, where water never reaches, are covered with white guano, looking almost like snow caps. There are four major rocks which, in a horseshoe fashion, form a crater, which is somewhat protected from the breakers rolling in with the wind from the east. This 'crater', about 50 metres wide, 90 metres long and 10 metres deep is a beautiful natural aquarium full of colourful fish, lobster and seaweed."

It was decided the safest anchorage would be at the entrance to the horseshoe and the vessel was tied equidistant to the rocks on either side with four ropes and the anchor thrown in for additional stability. The tying up and landing procedures were carried out with the aid of an inflatable rubber boat.

Unloading was completed before darkness, except for the second generator due to its weight of 60 kilograms. Rolf remarks that this operation went smoothly, considering the terrain and particularly the jagged rocks and was due to the French crews expertise.

The first "chore" for Jim and Rolf was to set up the vertical antennae and unpack the gear. In finding a place which was relatively flat for the operating table, that was thought to be above high tide, the boxes were moved to the vicinity. According to Rolf's notes, "Murphy's" law struck and it was impossible to start the generator, the tide was rising fast and the gas lantern was found but no matches were brought ashore so with much difficulty some were secured from the vessel, not before a hurried transport of the equipment was made to higher "rock", just in case. A full moon assisted greatly.



Antenna Array

With the gas lamp now operational, Rolf attacked the 1.5 kW generator again, to no avail. Everyone very tired, partook of a seafood supper, caught by the crew and celebrated the landing by opening a bottle of 12 years old Chivas Regal.

Morning light saw the two amateurs assembling the station and being bothered by a small kind of seagull which didn't approve of the disturbance to their habitat. These birds would dive on the unwary visitors and on occasions drew "blood" from both the skipper and navigator. This was going to be another operating hazard but ingenuity, some scrap canvas from the



The remains of the Lighthouse at left, the operating position (lower centre) and the "DUODO DIOP" tied and anchored.

boat, and rope made a cover for the operating position.

The first QSO was made and the rigs as Rolf describes "Were my old DRAKE line and the KENWOOD 820 with remote VFO. Since there was no protection against the wind from the sides, it did not take long before the equipment was covered with salt spray which was being constantly blown into the rigs. The buttons were actually dripping with saltwater and we had to run our fingers across the dials at intervals to be able to read the frequency! By the evening the DRAKE started behaving erratically and by morning it was "dead" and we had to bring the FT101E from the boat. An SB200 linear drew too much current from the generator so that the Auccu-keyer would reduce speed to half whenever the linear was transmitting, so we gave up that idea pretty soon."

Further troubles developed. The second keyer also stopped functioning and the two lone amateurs were soon reduced to minimum equipment to keep the two stations on the air at the one time. The large 1.5 kW generator had been unloaded and was pressed into service without any problems. After some use of alternating the two generators, the older one broke down for good. The group were left with one generator for at least another scheduled 48 hours of operating.

Propagation conditions were not the best and both operators had time to partake of the excellent cuisine offered by the French crew. The daily menu consisted mainly of lobster and occasionally fish. They consumed some 41 lobsters during their stay and the trip back and Rolf recalls that he was not aware how delicious bar-bue'd lobster was.

As previously mentioned, conditions were poor. At times virtually only one band was open at a time and it was futile trying to run two transmitters. Rolf recalls that openings to JA were by far the best in the early morning, from about 08:00 to 10:00 UTC on twenty metres and since signals were never really that strong they decided to restrict their operating to CW. This, Rolf says, caused "Some people to be probably mad at us because we did not work anything except JA and that general area as long as conditions lasted. Europe and North America could be worked around the clock."

"Most of the work was done split frequency and we had our share of those

who insisted on calling on our frequency. We tried our best to keep at least one station on the air at all times but as long as conditions were there this meant very little sleep. We had an average of three hours sleep per 24 hour period, since it was impossible to catch up on sleep during the day due to the lack of a place to lie down in the shade when the sun was out.

"In general it seems that everyone had a fair chance to work us and it looks like those that tried hard enough, really did. VK and ZL stations had a very hard time, since the band would not just open up to those areas with very few exceptions. Also, we worked a surprisingly small number of USSR stations. Our handicaps were the fact that we did not run any power and used "no gain" antennas, verticals, two of them, a 10-40 metre version, placed some thirty metres from the first one."

The whole trip took about two weeks, with three days of operating. The log had 5600 QSO's entered, not the number that was originally their goal, but quite a good effort considering the difficulties that were encountered.



The largest rock with the derelict Lighthouse.

One has not got to use the imagination to consider the difficulties that lie ahead for future expeditions. The expedition late last year encountered severe difficulties and with the world wide escalation of fuel prices and the difficulties associated with chartering reliable seaworthy vessels that will get one to their destination and a reliable crew to man the vessel, any DXpedition, would have considerable research and planning ahead of them. This is without the problems of the workable area on the Rocks themselves, let alone the efforts of getting equipment ashore.

All amateurs, who need this rare country for a new one, when and if it does come up again, please think of the operators and the conditions that they are enduring to give you that contact. Then of course, there is the amateur who has it already confirmed, and just notches it up to "brag" about how good an operator he is. Fortunately, this type of operator is in the minority, as the majority of DXers are not selfish and do not indulge in the practice of depriving others from getting a new country to their score, in fact it is generally the opposite where they encourage and assist another operator, even if he is ahead of them on the DXCC ladder.

QSLs RECEIVED (January)

BY8AA, DU1REX, KH60Z, KX60B, VK9ZR (Willis Is.), VK9ZR (Melish Reef), 5H3HB also for 10 MHz FK8EB, G2HW, KP4CKY, 0Z7VK, 3X50X.

CW SWL-ING WITH ERIC L30042

26 MHz
DJ3XD (1000 UTC), HL2DAK, JH1KPL, VE7DRI.
21 MHz
CT2CB, DL6HAL, FK8KAA/P, KH6CP, LA3UL, LU4AC, PY3YUW, SM3BDP, UK0UAB, VK4VMB (XYL).
14 MHz
A35MJ, W6KG/A7 (XYL), N0Z0/DU2, EA9MG, F08FW, JX6RE, KV4CI, NP4BN, P29BR, UA0UAN, T1BER, VE3DITL, VP9LB, XE1X, ZS6BUX, 457WP, 9V1TL.
10 MHz
DL3ZAJ, NZET/DU6, DL7AD/EA8, F8VJ, FC9VN, EZ5IAN, UB5UK0, YU7NZR, Z54CV.
3.5 MHz
XZ2XW/1, YV5ANE (2030 UTC), 4Z4MK, Z54CS, 9J2BO.
7 MHz
DL6VU, F8VJ, G13QR, HB9CKF, L21BC, UA4FCM, EZ5IAN, UB5UK0, YU7NZR, Z54CV.
3.5 MHz
F6FAI, HA5KD0, 0Z7YY, UK2GKW, UK2PCR, UK3AA0, YU3DBC.

CW WORKED ON THE WEST COAST

1.8 MHz
5N8RY, EA2OP, OH0W, T32AF, UA2GCN, UA9SAX, UA9ULC, UK2BAS/UG6.
3.5 MHz
5T5CJ, 5W1EH, H21AB, OH0W, RG6G, T32AF, UA9YAE, UK2BAS/UG6, UK2PCR/UG6, ZK2RU.
7 MHz
A4XJO, A71AE, AH0C, FR0GL, KV4SZ, UK2FAA.

WORKED ON THE NOVICE BANDS

26 MHz
30ZDN, 5W1DW, A35TN, DU1EMC, T32AJ, T32AL, TG9HH, YV2BYT.

21 MHz
30ZTN, 30ZWR, 6DSXMT, 9V1TL, A35TN, AP2AP, DU1CK, DF3SJ, F68FC/FC, FG7XL, F08GT, GM4FNE, H08BHA, HC2X, HC8RS, HL1AD, KL7LF, OA4BUU, OK1AVD, P29JW, SM6GR, T30BY, TG4HH, TG9VT, T15KV, UK4NBM, YS1IX, ZC4NB, ZS5TE.
3.5 MHz
30ZTN, A35TN.

WORKED ON THE EAST COAST

26 MHz
HA7LM, LZ2VE*, PA0DS*, WH2ADE.
21 MHz
3B8FK*, 3V8AA, 4U1VIC*, A71AD, CE0AE, CR9CT, CT2QN*, EI0CL, G13ZAD*, HLSXF, K0CS/KH8, UA6HYL*, VK0HI, VK0CW, VU2RAH*, Y26S0*.
14 MHz
EA3AKN, 9N1MM, A35MJ, A35PG, A4XJV, A71AD, AP2SQ, BV2B, CE0AE, CE0AE, CESSG, F8B8AB, FC9UC, G4NMG, Beryl, GW2SB, H3ADI, HT1AGI, IK2ARP, JY4CB, KA6KL, KH7AA, M1V, OE3FS, OK3YX*, 0Z7YY, T30BY, T30CH, Vicki, T30DB, UK7PAL, UL77BM*, VK0HI, VK0CW, VU2KMK*, VU2TLB, W6KG/A7, XE2BBD, Y11BGD, Y08CF, ZL3PA/G.

* Denotes CW operation.

QSL ROUTES OF INTEREST

A22CT, via G3HCT, J. Bazley, Ullenhall, Henle in Arden, Warwick.
5H3AA, to LA7FAA, PO Box 79, N9372, Gibstadt, Norway.
5Y4DA, PO Box 30137, Nairobi, Kenya.
BV2A & BV2B, Tim Chen, PO Box 30457, Taipei, Taiwan 107.
C0TGF, CT10F, R do Parque 46, 1500 Lisboa, Portugal.

F8BZQ, via F6AJN, PO Box 88, Nancy, SX50X, PO Box 157, Rhodes.
TA1A0 to Box 167, Bakirpö, Istanbul, Turkey.
NO CALL SIGN ON ENVELOPE.
T15BGA, PO Box 165, Grecia, Costa Rica.
T1BER, Chris, PO Box 1503, Banqui.

* It is advisable in all cases with overseas QSLs to omit any mention of amateur radio from the envelopes.

QSL MANAGERS OF INTEREST

4N0SM (YU7JDE), BU5JM (WA4VDE), 8Q7DL (DL9BAF), 9K2EK (JA2LZB), 9K2HE (DJ9ZB), 9N1WV (JA8BMK), 9Y0NP (W3HNK), C30LM (EA3BKZ), C30MS (EA3MS), C30MK (EA3WZ), C30LG (EA3BDW), CE0ZAD (WB6WOD), C53DZ (DJ6SI), DA1WF/OH0 (KN6G), F8B8G (F2CL), FO0JO (K6HHD), FO0QJ (W6GO), HH5CB (K9WUJ), HV2VO (IG0PY), KH6AC (WP2ACL), KK7KJ (KJ7N), OX5RD (N9BEM), PY0RA (PY7YS), PY2ZF0 (W7AMM), W4MNG (W4VDE).

THANKS

These notes wouldn't have been possible without the information gained from magazines such as BREAK IN, CQ, cqDX, DX NEWSHEET, RADCOM, QST, WORLD RADIO, Overseas amateurs including EA1VG, G3NRC, IBSAT and ZL1AMM. VK amateurs VKs 1MM, 3FR, 3YJ (formerly VK3DFD), 5QX, 5AKH, 6IT, 6NE and Eric L30042. Thanks to one and all for your support.

THUMBNAIL SKETCHES



MAURIE BATT VK3XEX

Maurie is a relative newcomer to the amateur radio transmitting fraternity, having gained his licence in 1982, however his interest in radio begins before WW2. As a boy he was interested in building model steam engines, photography and short wave listening.

He enlisted in the RAF at the outbreak of World War Two and served with Coastal Command in Beaufighters and later in Sunderland Flying Boats. He was later posted to Africa to serve as Flight Engineer on Sunderlands, Liberators and Douglas DC3's. His operational tour with the Emergency Operational Unit in Africa took him to just about every country on the west coast of the Dark Continent.

Maurie was demobilised in 1946 and went to work for the Lancashire Aircraft Corporation but the peacetime activities were not to last long. While with the LAC he flew on the Berlin air-lift for 22 months after which he joined British Airways European Branch.

Maurie and his wife Marge, along with their two daughters Sue and Hilary came to Australia in 1950 and first went to Bathurst NSW for 3 weeks. From there they came to

Ballararat for 7 weeks and then on to Rokewood Junction where they still live.

He joined the WIA soon after as an SWL and has been a member of the local radio club ever since, serving as QSL manager for all the local amateurs for most of that time. He has also found time in the past to bulk sort QSL cards for the VK3 bureau.

At the 1982 Annual General Meeting of the Ballarat Amateur Radio Group he was awarded Life Membership in recognition of his outstanding contribution to amateur radio.

He is shown in the photograph receiving his award from the outgoing President, Dick VK3AEX.

GEORGE HAM. 4GW 1929

A well known and popular amateur of the 1920-30s, George was the country representative of Chandlers and travelled as far north as Mackay, and west on a Douglas motor cycle being away for weeks at a time.

George Ham's radio career started with self excited transmitters and direct coupled amplifiers using home made Reiss microphones. He experimented with scanning discs and neon tubes in Tom Elliot's TV days and with Arthur, 4AW, tuned the weird patterns from radio 4QG.

George was secretary of the Toombul Radio Club in 1930. May 24th 1931 saw the first recorded VK4 56 MHz (CW) contact, between George and Arthur, 4AW, prior to the introduction of super regenerative receivers and subsequently radio telephony on 56 MHz.

George retired from amateur radio in the mid 1930s and remained with Chandlers until his retirement from the wholesale division a few years ago.

George enjoys reasonably good health.

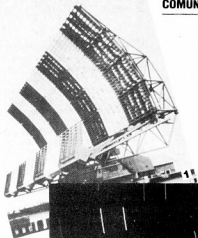


ANNEE MONDIALE DES
COMMUNICATIONS
WORLD COMMUNICATIONS
YEAR

AÑO MUNDIAL DE LAS
COMUNICACIONES



1983



3



4

PHOTOGRAPHS
FOR
WORLD
COMMUNICATIONS
YEAR
1983



5



WORLD COMMUNICATIONS YEAR: 1983



Roy Hartkopf VK3AOH
34 Toolangi Road, Alphington, Vic. 3078.

PUBLIC RELATIONS

John Hill VK3DKK
Public Relations Co-ordinator

(G) General. (C) Constructional. (P) Practical without detailed constructional information. (T) Theoretical. (N) Of particular interest to the Novice.

This happens to be the twenty-fifth magazine review I have done since taking over the work. Apart from a couple of generally favourable comments there has been no feedback. I have tried to select material on the basis of usefulness to Australian amateurs, general interest, originality and information on the 'state of the art'. I have tried to avoid reprints and articles with attractive titles which do not come up to expectations. Any comments or suggestions would be very welcome. The apparently haphazard appearance of various issues of magazines is due to their spasmodic arrival from overseas.

RADIO COMMUNICATION. Jan 1983.
1200 Baud Decoder for UOSAT Oscar 9. (P) Index to Vol 28. (G)

QST. Nov 1982. Field Day Results. (G) UOSAT Oscar 9 story. (G) Antennal Gain Measurements. (G)

WORLD RADIO. Dec 1982. Year 12 Issue 6. World Amateur news but mainly USA contests, conventions, DX. Profile of Percy Anderson. VK3PA. Heard Island Expedition. (G)

SHORT WAVE MAGAZINE. Nov 1982. Improved accuracy for SWR meters. (P)

CQ-TV No 120 Nov 1982. Filters etc. (P)

AR

SPECIAL EDUCATION QSP

Brenda VK3KT has available:

Trial Exam Papers —
Theory, Novice, AOC, Regulations.

Past CW Exams from DCC.

10 Exams at 5 w.p.m.

10 Exams at 10 w.p.m.

10 Exams fill a C60 tape. Send a tape and I will copy what you want onto it.

Complaints — or other comments —
about Exam papers?

Make them known to your Federal Education Officer, VK3KT, QTHR, or on the Education Net, Wednesday evenings 12.00 UTC. 3.685 MHz±

Although many of you may not have received the February issue of *AR*, at the time I am typing this column for the March issue, some interesting reactions have been received on my suggestions in February *AR* on the subject of WCY '83, public relations.

Firstly I would like to thank the VK5-Division for forwarding to me a promotion proposal, which is so professionally put together, that, apart from sending a full copy of this proposal to all divisional offices, it will also be used in this column for the use by clubs and individual members.

Our main target must be to improve the image of our amateur fraternity, on air as well as in our daily environment.

On air: by giving a good example to non-members and listeners (and you never know how many there are) by being polite and showing patience during a QSO.

By leaving openings during the QSOs for others to join in.

By welcoming and assisting "new calls" on the frequencies and introducing them to other amateurs in our QSOs.

Off air: by showing people all about your hobby, invite them to your shack and club meetings.

By explaining to your friends (and

neighbours) that we are not unqualified CBers (with due regard to CBers) but that we had to pass an exam (don't tell them how many times we sat) to become a licenced operator, be it novice, limited or full amateur.

By offering your services to your division and local clubs in any public activities (WICEN etc.). If you feel good about your hobby, show it to others. Many of you have children at school and perhaps their teacher could be approached for a demonstration of amateur radio. Your division or club would only be too willing to assist you in such a promotion. Don't forget the children are the members of the future!

In fact, in any case contact your division and let them know what your plans and suggestions are.

Another point I would like to raise is QSL cards. How about having the WIA "diamond" logo printed on your QSL-cards and let the amateurs know that you are proud of your organization.

And ... talking about QSL-cards, if you promised to send one, please do so, and don't wait too long ...

That's all for now and don't forget ... try to enroll a new member ... after having paid your own subs for 1983.

AR

Photo 1 — Radar Antenna at London Airport. (Photo: Marconi, United Kingdom)

Photo 2 — Coastal station Kiel-Radio: coastal stations keep ships all over the world in contact with land, and provide them with meteorological information necessary for the safety of life at sea, and aid maritime navigation. (Photo: Deutsche Bundespost)

Photo 3 — Parabolic antenna at the Kashima branch of Radio Research Laboratories. (Photo: Ministry of Posts and Telecommunications, Japan)

Photo 4 — Radio is the only moon to earth communication link for astronaut Edwin E. Aldrin Jr walking near module during Apollo 11 extra vehicular activity. (Photo: NASA)

Photo 5 — Telecommunication testing laboratory in Saudi Arabia. (Photo: Administration of Saudi Arabia)

AWARDS

Mike Bazley VK6HD
Federal Awards Manager
8 James Road, Kalamunda, WA 6076

Awards issued to the 5th January 1983 and amendments made up to 31st December 1982 are listed below. Because of the amount of paper work, I have decided that I will adjust totals, for

deletions, once a year. January the first seems to be a good time, at least for me, so the HK0, KS4 and 8Z4 deletions will be picked up in the next DXCC listings.

The number of stations in the DXCC top listings is growing and I notice that there are a number of stations that have not changed their score during the past two years. If you are interested in keeping your call in the lists, and you have not amended your totals during the past two years, could you please drop me a line.

WAVKCA AWARD

CALL SIGN	CERT NO	CALL SIGN	CERT NO
JF2GIZ	1092	VK2AKP	1101
JASBWK	1093	JADSD0	1102
VK3ZA	1094	JHTXRG	1103
ZS2DK	1095	PZ9NCM	1104
DUIEH	1096	GW4KGR	1105
JA2FDC	1097	JHBMFS	1106
JA2MTM	1098	VE2IJ	1107
JH8CZB	1099	ZL4PX	1108
OK3TMF	1100		

DXCC NEW MEMBERS

PHONE	CERT NO	TALLY
CALL SIGN		
VK4NWH	303	100
VK6BA	304	103
VK2NYL	305	104/105
VK2VMX	306	105/106
VK2KCN	301	102/104
VK4AH	308	151
VK3CEW	309	105

CW	CERT NO	TALLY
CALL SIGN		
VK5W0	119	135/140
VK5AKH	120	101

OPEN	CERT NO	TALLY
VK5GZ	212	112
VK1BB	213	112
VK5WV	214	304/316

VHFCC AWARD

CERT NO	CALL SIGN
114	VK3XJA

WAVKCA (VHF) AWARD

CERT NO	CALL SIGN
16	VK3AWY

WAS (VHF) AWARD

CERT NO	CALL SIGN
128	VK3AWY (Amendment)
	17 Countries
152	JA6RJK

DXCC TOP LISTINGS

PHONE	CALL SIGN	TALLY	CALL SIGN	TALLY
VK6RU		317/362	VK4PX	297/312
VK4MS		317/360	VK30T	295/296
VK4KS		317/349	VK3AH0	293/326
VK6MK		314/352	VK2APK	293/313
VK5AB		314/345	VK4UC	293/306
VK6LJ		311/325	VK6FS	292/294
VK7DK		308/323	VK5XN	289/302
VK3JF		308/320	VK7AE	289/291
VK4VC		308/319	VK3AWY	289/290
VK6HD		307/314	VK5W0	286/308
VK4FJ		306/343	VK3RF	286/288
VK7LZ		306/323	VK3DV	284/284
VK4RF		304/314	VK6YL	283/284
VK4AK		304/313	VK2AHH	280/303
VK5WV		303/315	VK7BC	280/283
VK3AMX		302/312	VK3D0	273/275
VK3AKK		300/302	VK4BG	272/282
VK6NE		299/306	VK4D0	261/281

CW			
VK2QL	310/350	VK3YD	281/313
VK2EO	308/346	VK4RF	277/298
VK3YL	308/336	VK6HD	270/281
VK4FJ	302/345	VK6RU	262/302
VK3AHQ	298/331	VK3RJ	261/288
VK3XB	286/314	VK3NC	260/297
VK2APK	282/304	VK7LZ	253/283

OPEN

CALL SIGN	TALLY	CALL SIGN	TALLY
VK6RU	317/363	VK30T	298/299
VK4KS	317/353	VK7BC	297/301
VK3YL	316/348	VK4UC	296/310
VK4SD	316/348	VK2SG	295/314
VK6MK	314/352	VK5W0	294/317
VK6HD	313/328	VK3AH0	293/326
VK4FJ	312/356	VK3XB	291/320
VK4RF	312/336	VK2AHH	287/313
VK3JF	311/332	VK5RX	281/313
VK7OK	309/324	VK4BG	279/292
VK7LZ	307/339	VK4DP	278/287
VK4PX	304/323	VK4D0	268/296



GOLDEN HILL RADIO GROUP
KALGOORLIE - BOULDER WESTERN AUSTRALIA

Hainan Reward

SAMPLE

W H Jones VK6ZX

In the year of 1910, a lease of twenty acres was granted and registered in the name of the Golden Hill Radio Group by a prospector by the name of Harry Hainan. The lease was named Hainan.
The Hainan went on to become one of the most successful miners in the Golden Hill between 1910 and 1947. The mine produced a yield of 1,000,000 ounces of gold.
The goldfield 2 metre diameter VORAK is located on the golden hill of this mine.

VK5WV	304/316	VK3JJ	268/293
VK4AK	304/314	VK3NC	261/298
VK3AMK	302/312	VK5BO	254/286
VK2APK	300/329		
VK3AKK	300/302		

DXCC AMENDMENTS

PHONE

VK2AHH	280/303	VK4AK	304/312
VK3ABH	258/259	VK5BO	195
VK3AWY	289/290	VK5WO	286/308
VK3DFD	270/271	VK6HD	307/314
VK3RF	286/288	VK6LK	311/325
VK3OT	295/296	VK6MK	314/352
VK3VU	260	VK6RU	317/362

CW

VK2AHH	137/151	VK6HD	270/281
VK3ABH	138/144	VK6RU	262/302

OPEN

VK2AHH	287/313	VK5WO	300/327
VK3ABH	266/272	VK6HD	313/328
VK3OT	298/299	VK6MK	314/352
VK4AK	304/314	VK6RU	317/363
VK5BO	313/328		

HAINAULT'S REWARD

The Goldfields Amateur Radio Group offer a very attractive award. The award shows the Hainault gold mine site against a setting sun and the main printing of the award is done, naturally enough, in gold. The award is available to all licenced amateurs and SWLs. All contacts made after January 1st 1982 count towards the award.

REQUIREMENTS

VK/ZL Work five resident goldfields amateurs, including two GARG members, within the 250 km radius of Kalgoorlie, including the town of Windarra.

OVERSEAS Work three resident goldfields amateurs, including one GARG member, within the 250 km radius of Kalgoorlie, including the town of Windarra.

COST VK/ZL \$3 Aust., or equivalent, or 8 IRCs.

OVERSEAS \$4 Aust., or equivalent, or 10 IRCs.

APPLICATION

QSLs not needed, send certified extract of log, signed by two other amateurs to: The Awards Manager, PO Box 463, Kalgoorlie, Western Australia 6430.

All contacts to be made in accordance with applicant's licence requirements.

No official GARG net contacts allowable. Contacts to be 2-way SSB, CW, FM or other recognised mode of transmission; no crossmode or crossband contacts except via satellite.

All contacts endorsed "mobile" or "portable" to be made from the same call area.

HELVETIA AWARD

For this attractive award only contacts made after 1 January 1979 have validity.

Mail your list and the confirmations for each of the 26 cantons worked on CW and/or phone, RTTY or SSTV to awards manager; Walter Blattner, HB9ALF, PO Box 450, Locarno 6601, Switzerland.

INTRUDER WATCH



Bill Martin VK2EBM
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Rd, Hornsby Heights, NSW 2077

The listing of known intruders, from time to time, in this column should, I hope, be a help to those of us who wish to register their complaints of intrusions into the amateur bands by stations operated by Governmental, Military, and Commercial installations. This month we will deal with intruders employing the A3E mode, which is AM broadcasting. Look to future columns for details of known intruders using other modes of transmission.

LIST OF KNOWN INTRUDERS USING A3E (AM) MODE

80 METRE BAND. 3.500 MHz-3.700 MHz

This band in International Amateur Radio Union, Region 3 is NOT exclusive to amateur operators. Fixed and mobile services also are legal, and often appear using RTTY (F1B mode). HOWEVER, broadcasting stations heard between 3.5 and 3.7 MHz are intruders, and should be reported as such. Examples:

3.535 MHz Radio Peking China
3.560 MHz Pyongyang, North Korea

3.640 MHz Radio Peking China
40 METRE BAND. 7.000 MHz-7.300 MHz

This band in IARU Region 3 is exclusive for amateur use only between 7.0 and 7.1 MHz. All intruders heard in this exclusive segment should be reported.

7.010 MHz Radio Peking China
7.025 MHz Peoples' Liberation Army Fochow, China
Radio

7.035 MHz Radio Peking China
7.055 MHz Radio Peking China
7.065 MHz Radio Tirana Albania
7.075 MHz Radio Tirana Albania
7.080 MHz Radio Tirana Albania
7.095 MHz Radio Peking China
7.099 MHz Radio Moscow Russia

20 METRE BAND. 14.000 MHz-14.350 MHz

This band is exclusive to amateur operators from 14.0 MHz to 14.25 MHz. The segment 14.25 to 14.35 MHz has USSR

fixed stations operating. HOWEVER — AM broadcast stations heard in the exclusive amateur segment should be reported as intruders.

14.050 MHz PLA Radio Fochow, China
(Harmonic of 7.025 MHz)

14.070 MHz Radio Peking China
(Harmonic of 7.035 MHz)

14.320 MHz Radio Tirana Albania (In Mandarin Chinese)

15 METRE BAND. 21.000 MHz-21.000 MHz
This band is for EXCLUSIVE amateur use.

21.121 MHz Radio Moscow Russia
(Spurious of 21.529 MHz)

21.238 MHz Radio Moscow Russia
(Spurious of 21.529 MHz)

21.356 MHz Radio Moscow Russia
(Spurious of 21.529 MHz)

All amateur radio operators and short wave listeners are urged to send in reports of these intrusions to their Divisional Intruder Watch Co-ordinator, whose details appear in the call-book, or send reports care of your WIA division.

Next month we will deal with intruders using the A1A (CW) mode.

PLEASE HELP THE INTRUDER WATCH.

COLLECTORS VINTAGE RADIO

Hugh Muggeridge of Little Oso Rd, MANAIA, RD 28, TARANAKI, NZ, wants to contact collectors of Vintage Radios, so how about letting him know...

REMINDER

RAOTC QSO Party, 14 March. See February AR for details.

VK3ZC



CONTESTS



MARCH 1983 CONTEST CALENDAR

- 5-6 ARRL DX Phone Test
 12-13 QCWA Phone QSO Party
 12-13 YL/ISSB CW QSO Party
 12-13 RSGB Commonwealth CW (See Feb. AR for details)
 19-20 BARTG Spring RTTY Test
 19-20 Bermuda Test
 19-20 G QRP Day
 26-27 CQ WW WPX SSB Test

APRIL

- 6-7 DX-YL to NA-YL CW Party
 9-10 CARF Commonwealth SSB Test
 13-14 DX-YL to NA-YL Phone Party
 16-17 Polish Phone Test (Tentative Date)

MAY

- 26-27 CQ WW WPX CW Test

CONTEST CHAMPION FOR 1982/83 CONTEST

The contests chosen for the VK Contest Champion were: John Moyle, VK7ZL, RD, and VK Novice.

The points awarded are as follows: first place equals 10 points, second 9 points, third 8 points and so on through to tenth position which equals 1 point.

An entrant must be included in three of the four contests. He/she may not score but must have entered.

To win the entrant must be a member of the WIA.

On the completion of all contests the highest points scorer wins the contest champion trophy for one year. The contests for the 1982 year have been completed and the available results are listed below. The results of the VK/ZL contest are not usually available until the June edition of AR. Therefore the trophy is awarded in the latter part of the year and held for the following year.

The contest for the 1983 year is now about to begin with the John Moyle National Field Day. To become eligible you must enter and to stand a chance of winning you should try for a high score (positions one to 10) in each of the contests. GOOD LUCK.

THE RESULTS SO FAR FOR 1982

CALL-SIGN	J	M	VK/ZL	RD	VK Nov	TOTAL
3WP	10	—	10	18	38	
5QX	10	—	10	14	34	
4VIX	—	—	—	17	17	
2BOS	8	—	—	7	15	
5GZ	—	—	3	10	13	
3YIW	10	—	3	—	13	
3NZO	—	—	4	9	13	
3XB	—	—	3	8	11	
4LT	—	—	10	—	10	

The contests for 1983 are now about to start with the John Moyle and will be the same set of contests for this year. Be sure to have your entry in for a good position in all the contests for 1983.

THE 27TH ANNUAL CQ WORLD WIDE WPX CONTEST

SSB: MARCH 26-27 1983

CW: MAY 28-29 1983

STARTS: 0000 UTC SATURDAY

ENDS: 2400 UTC SUNDAY

CONTEST PERIOD: Only 30 hours of the 48 hour contest period permitted for Single operator stations. The 18 hours of non-operating time may be taken in up to 5 periods anytime during the contest, and must be clearly indicated on the log. Multi-operator stations may operate the full 24 hours.

OBJECTIVE: Object of the contest is for amateurs around the world to contact as many amateurs in other parts of the world as possible during the contest period.

BANDS: The 1.8, 3.5, 7, 14, 21 and 28 MHz bands may be used.

TYPE OF COMPETITION: 1. Single Operator (a) All Band, (b) Single Band. 2. Multi-operator, All Band only. (a) Single Transmitter (only one transmitter and one band permitted during the same time period, defined as 10 minutes, no exception), (b) Multi-Transmitter (one signal per band permitted). **NOTE:** All transmitters must be located within a 500 metre diameter or within the property limits of the station licensee's address, whichever is greater. The antennas must be physically connected by wires to the transmitter.

EXCHANGE: RS(T) report plus a progressive three-digit contact number starting with 001 for the first contact. (Continue to four digits if past 1000.) Multi-transmitter stations use separate numbers for each band.

POINTS: Contacts between stations:

(A) Contacts outside of own continent count 3 points on 28, 21, 14 MHz, and 6 points on 7, 3.5, 1.8 MHz.

(B) Contacts with other countries on own continent count 1 point on 28, 21, 14 MHz, and 2 points on 7, 3.5, 1.8 MHz.

(C) Contacts within own country count 0 points but are permitted for prefix multiplier credit.

MULTIPLIER: The multiplier is determined by the number of different prefixes worked. A "PREFIX" is counted once during the entire contest regardless of how many times the same prefix is worked.

A "PREFIX" is considered to be the three letter/number combination which forms the first part of an amateur radio call (N1, W2, WB3, K4, AA6, WD8, 4X4, DL7, G3, IT9, KH2, AL7, NP2, WF4, 9M2, CT9, 4J9, PY7, VK4, JE3,

VE3, Y32, Y33, Y45, AN8, AB8, H44, KT4, etc.). A station in a call area different than that indicated by its call-sign is required to sign portable. The portable prefix would be the multiplier. Example: W8IMZ/4 would count for prefix W4 only and W8IMZ/LX would count for prefix LX only.

Special event, commemorative, and other unique prefix stations are also encouraged to participate.

Band Score, total QSO points from all bands multiplied by the number of different Prefixes worked. (b) Single Band score, QSO points on the band multiplied by the number of different Prefixes worked.

Multi-Operated stations. Scoring in both these categories is the same as the All Band scoring for Single Operator.

A station may be worked once on each band for QSO point credit. However, prefix credit can be taken only once regardless of the number of different bands on which the same station and/or prefix has been worked during the entire contest.

QRPP SECTION: (Single Operator Only). Power must not exceed 5 watts output to qualify for QRPP section competition. You must denote QRPP on the summary sheet and state the actual maximum power output used for all claimed contacts. Results will be listed in a separate QRPP section and certificates will be awarded to each top scoring QRPP station in the order indicated in Section X. These certificates will be marked QRPP and will show your power output. QRPP stations will be competing only with other QRPP stations for awards. All other information contained in these rules is applicable to this section.

AWARDS: Certificates will be awarded to the highest scoring station in each category listed under Section IV.

1. In every participating country.

2. In each call area of the United States, Canada, Australia, and Asiatic USSR.

All scores will be published. However, to be eligible for an award, a Single Operator station must show a minimum of 12 hours of operation. Multi-operator stations must show a minimum of 24 hours.

A single band log is eligible for a single award only. If a log contains more than one band, it will be judged as an all band entry, unless specified otherwise. However, a 12 hour minimum is required on the single band.

In countries or sections where the returns justify, 2nd and 3rd place awards will be made.

CLUB COMPETITION: A trophy will be awarded each year to the club or group that has the highest aggregate score from logs submitted by members. The club must be a local group and not a national organization.

LOG INSTRUCTIONS: 1. All times must be in

UTC. The 18 hour non-operating periods must be clearly shown.

2. Prefix multipliers must be entered only the FIRST TIME they are contacted.

3. Logs must be checked for duplicate contacts and prefix multipliers. Recopied logs must be in their original form, with corrections clearly indicated.

4. An alphabetical/numerical check list of claimed PREFIX multipliers must be sent along with your contest log. (A prefix is counted one time only.)

5. Each entry must be accompanied by a Summary Sheet listing all scoring information, the category of competition, and the contestant's name and mailing address in BLOCK LETTERS.

Also submit a signed declaration that all contest rules and regulations for amateur radio in the country of the contestant have been observed.

6. Official log and sample summary sheets are available from CQ. A large self-addressed envelope with sufficient postage or IRCs must accompany your request.

If official forms are not available, you can make your own with 40 contacts to the page.

DISQUALIFICATION: Violation of amateur radio regulations in the country of the contestant, or the rules of the contest, unsportsmanlike conduct, taking credit for excessive duplicate contacts, unverifiable QSOs or multipliers will be deemed sufficient cause for disqualification. Actions and decisions of the CQ WPX Contest Committee are official and final.

DEADLINE: All entries must be postmarked no later than May 10, 1983 for the SSB section and July 10, 1983 for the CW section. Indicate SSB or CW on the envelope. From rare isolated areas the deadlines will be made more flexible. Your support is appreciated.

Logs go to: CQ Magazine, WPX Contest, 76 N. Broadway, Hicksville, NY 11801 or to the new WPX Contest Director: Steve Bolla N8BJJ, 7659 Stonestboro Dr., Huber Heights, OH 45424 USA.

HELVETIA CONTEST

TIME — 23rd and 24th April 1983, 1300-1300 UTC.

RULES

Use bands between 160 and 10 metres, less WARC-Bands. Mode CW and/or phone. Send RS(T) plus a three-figure serial starting with 001. Swiss stations will send an additional two-letter designation of their canton. Example: 57 (9) 001 BL. The abbreviations of the cantons are as follows: ZH BELU UR SZ OW NW GL ZG FR SO BS BL SH AR AI SG GR AG TG TI VD VS NE GE JU. Each contact with a HB-station counts 3 points. A station can be worked once per band (either CW or phone). The multiplier is the sum of Swiss cantons per band (a possible multiplier of 26 per band). Final score will be the sum of QSO points multiplied by the sum of cantons. Awards will be given to the highest entry from each country. USA and Canada call areas are considered as separate countries.

Logs postmarked not later than 30 days after contest should be sent to: G. Stalder, HB9ZY, Tellenhof, 6045 Meggen, Switzerland. **AR**

VHF UHF - an expanding world

AMATEUR BAND BEACONS

Freq.	Call sign	Location
50.005	H44HIR	Honiara
50.008	JA2IGY	Mie
50.060	KH6EQI	Pearl Harbour (1)
50.075	VS6SIX	Hong Kong (2)
51.022	ZL1UHF	Auckland
52.008	VK0HI	Heard Island
52.013	P29SIX	New Guinea
52.100	VK0AP	Macquarie Island
52.200	VK8VF	Darwin
52.250	ZL2VHP	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.420	VK2WI	Sydney
52.425	VK2RGB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.500	VK2BNT	Newcastle
52.510	ZL2MHF	Mt Climie
53.000	VK5VF	Mount Lofty
144.400	VK4RTT	Mt Mowbullan
144.420	VK2WI	Sydney
144.465	VK6RTW	Albany
144.475	VK1RTA	Canberra
144.480	VK8VF	Darwin
144.550	VK5RSE	Mount Gambier
144.600	VK6RTT	Carnarvon
144.800	VK5VF	Mount Lofty
144.900	VK7RTX	Ulverstone
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.410	VK6RTT	Carnarvon
432.440	VK4RBB	Brisbane
432.450	VK3RMB	Mount Buninyong

There are quite a few changes to the beacons this month so they have been listed again. (1) and (2) are frequency changes for KH6EQI and VS6SIX. VK5KK (52.150) and VK3RTG (144.430) are not on the air.

Eric, temporarily indisposed, could not supply notes for this issue. Gil VK3AUI after a phone discussion with Eric, has put together some of the six metre happenings on Macquarie and Heard Islands over the last few weeks.

HEARD ISLAND

Dave VK0HI and Al VK0CW of the Heard Island expedition set up the six metre keyer on Heard Island and had it operational on Saturday 29th of January.

The keyer on 52.008 MHz will run for the duration of their stay. The keyer is running 100 watts. As well as Dave's TS660 they have an FT 680, which was supplied by Yaesu to drive the 100 watt linear. The beam provided by Werner Wulf, VK3BWW went up without a hitch. If there is any propagation they will be able to exploit it.

Both Dave and Al had an excellent trip to Heard Island aboard the yacht Anaconda II. The Anaconda II made good time thanks to the seamanship of its owner/skipper

Eric Jamieson VK5LP
7 Quinns Road, Forrester, SA 5233.



Dave, VK3DHF.

Josko Grubic and his crew. The DX-peditioners and the mountaineers made short work of setting up camp and VK0HI and VK0CW were soon handing out contacts. Maybe by now, they have worked someone on six metres.

MACQUARIE ISLAND

Peter, VK0AC was worked by twenty six lucky VK2s, VK3s and VK7s on 18th December. Since then he has been QRT due to interference to a Riometer. Peter Barclay, VK3FR, has cards and will forward them by return mail. Efforts have been made to get Peter, VK0AP back on air. Filters for the Riometer were despatched on the supply vessel which arrived on Macquarie Island at the end of January. It is hoped that the filters will clear the problem. Peter is also looking at resiting the rig in the hope of reducing interference. Hopefully he will soon be back on air. Some more sporadic E contacts with a few F layer and TEP contacts would be a great achievement. Keep listening on 52.1 MHz, Peter will be back soon.



Peter, VK0AP.

International contacts to either VK0 call area on six metres would be a great achievement for World Communication Year. **AR**

AR SHOWCASE



NEW MARITIME ELECTRONICS COURSE AT AMC

In the midst of a growing recession and widescale retrenchments, demand for trained personnel in one area cannot be fully met.

Classified advertisements in the daily papers reflect large numbers of vacancies both in Australia and overseas for electronics technical officers in a wide range of areas such as government departments — for example, Defence, Communications, Transport and Construction; the oil exploration and geophysical survey industries; and marine electronics companies. This shortage could well become more severe as the demand increases for personnel with knowledge of microprocessor technology. The starting salary for these positions is around \$16,000.

To help meet the demand for electronics technical officers, in February this year the School of Engineering at the Australian Maritime College in Launceston, Tasmania, is introducing a new, two-year full-time course — an Associate Diploma in Maritime Electronics.

The first year of the course runs in common with the existing Associate Diploma in Marine Radiocommunication. The second year emphasises areas such as instrumentation, digital and microprocessor systems, and advanced communication systems.

Entry to the course is by satisfactory completion of Year 12 or equivalent studies including mathematics and a science subject. Special consideration may be given to applicants aged over 21 who do not necessarily fulfil these requirements.

The Head of the School of Engineering, Dr John Cannell, says the school believes there are many people in the community with an appropriate work or educational background who would be eligible to apply for advanced standing to the course. Such people could complete the qualification in one year or 18 months. Those needing 18 months could begin study in July this year;

those requiring only one year of studies would be able to enrol in 1984 (the first time Year 2 of the course will be presented).

The type of people who would be eligible for advanced standing include the following —

- Ships' radio officers, other maritime, coast or land station radio officers or aviation communicators whose qualifications need updating;
 - Certain experienced and capable radio amateurs who have a good grasp of basic mathematics and first-year Associate Diploma standard electrical and electronics principles;
 - People holding a previous technical college certificate, eg electronics and communications certificates, either Australian or overseas;
 - Various service or ex-service technical personnel with an appropriate background who wish to obtain more widely recognised qualifications for new jobs.
- For enrolment or further information contact the Admissions Office (003) 26 0731 or the Course Leader, Mr E. Mackinnon, (003) 26 0757.

SEA SURVIVAL '83

Survival has often been described as man's strongest instinct, and the sea one of his greatest foes.

Modern technology has reduced many of the dangers of life at sea, and introduced others. Serious accidents and tragedies still occur.

An international seminar to be held at the Australian Maritime College in Launceston, Tasmania, on 17, 18 and 19 May this year, will examine new developments in survival technology and methods of improving standards of training and safety for survival at sea.

The seminar should appeal particularly to service personnel, airline operators, fishermen, yachtsmen, manufacturers of safety equipment, ship designers, water police, state emergency authorities, and shipping and offshore industry personnel.

Survival training experts from the UK, Norway, the USA and Australia will address the seminar on topics such as: Growth of the offshore industry and its future training demands; Mass evacuation systems — inflatable life chute and life raft development; Psychological and medical aspects of survival at sea; and Present and future uses of radio communication and radio location aids in distress, search and rescue operations.

The cost of the seminar including documents, luncheons, conference dinner and refreshments, but not accommodation, is

\$95 (less for full-time students). Accommodation will be available on campus or in the Launceston city centre. Early applications are advised.

For enrolment or further information, contact the Seminar Secretary, Australian Maritime College, PO Box 986, Launceston, Tasmania, 7250, telephone (003) 26 0711.



FT-77 THRIFTY HF TRANSCEIVER

Utilizing the new CAD/CAM manufacturing techniques, Yaesu presents the FT-77 as the new milestone in reliability, simplicity and economy in HF communications.

Featuring efficient, all solid state, no tube circuitry, this unit offers a nominal 100 watts of RF output on all amateur bands between 3.5 and 30 MHz, including the three new WARC bands. The new CAD/CAM techniques plus the simple design add up to one of the smallest, lightest HF transceivers ever.

The front panel control layout and operation are actually simpler than some VHF FM transceivers, with only the essential operating controls; while the simple circuit design leaves fewer parts that could cause problems. Nevertheless, all of the essential modern operating features for HF SSB and CW are included, along with extras such as dual selectable noise blanker pulse widths (designed to blank the woodpecker or common impulse noise), full SWR metering, and capabilities for an optional internal fixed-frequency channel crystal, narrow CW filter and FM Unit.

Computer-aided design of the circuit boards ensures the most efficient component layout possible in the smallest space, while automatic parts insertion and soldering greatly diminish the chance for human error. Reliability and quality control are thus improved and simplified beyond the degree previously attainable in amateur equipment. This means longer equipment life with less chance of a breakdown.

The extremely compact size and simple control layout make the FT-77 ideal for mobile operation, or as the heart of a complete base station with the optional FP-700 AC Power Supply, FV-700DM Digital

Scanning VFO and Memory System, FTV-700 V/UHF Transverter and the FC-700 Antenna Tuner. The low price, coupled with the expansion capabilities presented by these accessories, make this transceiver the perfect choice for those new to amateur HF communication, or as a practical second rig for old timers.

All enquiries may be made to the Australian agents, Bail Electronic Services, 38 Faithfull Street, Wangaratta Vic. Phone (057) 21 6260.

* Computer Aided Design/Computer Aided Manufacture.

AR



THE FT-980 ALL MODE HF CAT*

This incredible new transceiver incorporates the highest level of microprocessor control ever offered in an HF all solid state radio. Including a general coverage (0.15-30 MHz) receiver with its own, separate front end, this amateur transceiver offers a new dimension in frequency control; whereby frequencies can be entered by either front panel keypad or tuning dial, and then scanned in selectable steps either freely or between any two programmable limits. Twelve memories include four with special protection, and two large digital displays allow full flexibility and control for split frequency operation, while two meters allow full transmitter information.

Additional controls include IF Width and Shift on concentric controls, AMGC (Automatic Mic Gain Control) to set microphone input threshold, RF Speech Processor, ALC Meter Hold function, IF Notch and Audio Peak filters, Transmit Monitor, Noise Blanker and CW Full Break-in. Controls are also provided for FM Squelch and CW Keyer Speed when the optional FM and Keyer Units are installed.

The most important feature of the FT-980 is that practically all of the above features can be controlled by the user's separate personal computer, when connected through an optional interface, also available from Yaesu. Where up to now the few amateur transceivers that offered any kind of computer interfacing at all permitted only frequency control, the FT-980 permits almost total control of all functions from a separate microcomputer, including Mode; IF Width and Shift; Scanner Step, Speed and Limits; and switching of most other functions. Microcomputers are not available from Yaesu.

Further details may be obtained from Bail Electronic Services, 38 Faithfull Street, Wangaratta Vic. Phone (057) 21 6260.

* Computer-Aided Transceiver.

AR

YAESU YH-1

Yaesu has produced a new headset type YH-1 which include a light-weight head-phone and boom microphone. This headset

when used with the appropriate PTT Switch, can be used with FT207R, FT208R, FT780R, FT230R, FT7290R, FT690R and FT7790R.

For further information contact Bail Electronic Services.



THE FT-726R V/UHF MULTIBANDER

Combining all of the best features from Yaesu HF and V/UHF transceivers, the FT-726R opens a new world of operating ease and flexibility for FM, SSB and CW on the 50', 144 and 430/440 MHz amateur bands. The design integrates the individual operating requirements of each of the three operating modes into one unit, and the user can then select which of the optional plug-in band modules he desires.

The VFO-A/B scheme has ten programmable memories, and can be tuned in 20 Hz steps for CW and SSB operation, or in selectable steps for FM. FM tuning is accomplished by an indented tuning knob. IF Width and Shift controls are provided for CW and SSB operation, while both preset standard and user programmable repeater offsets can be selected for all modes. An optional Satellite Unit makes the FT-726R into a full duplex cross-band satellite transceiver.

Further information may be obtained by contacting Bail Electronic Services. Phone (057) 21 6260.

* 144 MHz Unit installed, other Units available as options according to local regulations.

AR



WHAT ARE YOU BUILDING?

Please tell AR about it so we can tell others.

Amateur Radio is an experimental hobby — if you share your experiments with us you are enriching our hobby!!

"A VERSE FOR THOSE OVER THIRTY"

Remember when hippie meant big in the hips
And a trip involved travel in cars, planes or ships?
When pot was a vessel for cooking things in
And hooked is what grandmother's rugs might have been?
When fix was a verb meaning mend or repair
And be-in meant simply existing somewhere?
When neat meant well-organized, tidy and clean
And grass was a ground cover, usually green?
When lights and not people were turned on and off
And the pill was intended to help cure a cough?
When groovy meant furrowed, with channels and hollows
And birds were winged creatures like robins and swallows?
When fuzz was a substance, all fluffy like lint
And bread came from bakeries, not from the Mint?
When a roll was a bun and a rock was a stone
And hung-up was something you did to the phone?
When chicken meant poultry and bag was a sack
And junk was just cast-offs and old bric-a-brac?
When cat was feline, a kitten grown up
And tea was a liquid you drank from a cup?
When swinger was someone who swung in a swing
And pad was a sort of cushiony thing?
When way-out meant distant and far, far away
And man couldn't sue you for calling him "gay"?
Words once so sensible, sober and serious
Are making the scene man, like psycho-delerious
It's groovy dad, groovy — but English, it's not
Methinks that the language is going to pot.

VKSXT

AR



Please remember your STD code when you advertise in HAMADS.



POUNDING BRASS

Marshall Emm VK5FN

Box 389, GPO Adelaide SA 5001

KEYS AND KEYSERS (Part II)

The ordinary manual key can't be beaten for simplicity and ease of operation, but there is still a lot of room for improvement. Some truly marvellous machines have been devised to simulate the actions of the hand in sending dots and dashes. Driven by springs and/or weights, they are all mechanically complex.

Basically, mechanical keys fall into two categories, semi-automatic and automatic. Either variety can be driven by a single paddle which is moved to one side for dots and to the opposite side for dashes, or by separate dot and dash paddles. The semi-auto variety will send a string of precise dots when the dot lever is actuated (or when the single paddle is swung to the dot side) but dashes are produced manually. There is often a problem in matching the speed of the dashes, or their spacing, to the mechanically generated dots, and if the dots are sent too quickly in relation to the dashes, the sending rhythm is distorted and the result can be very difficult to copy.

As a child of the semiconductor age, I have very little knowledge about mechanical keys. I have seen them in museums, and often recognized them on air, but have never used one. I would be grateful for any information readers can send me, particularly detailed descriptions or operating instructions.

I'm a lot more at home with electronic keys, which are of three basic types — manual, single paddle (side-swiper) and dual paddle (the iambic, or squeeze keyer). Oddly enough, the "manual" electronic key is the most recent in development. I've designated it a manual key because it is driven by a straight key. Called the "Fist Fighter", it acts as an electronic interpreter; it receives sloppy signals you generate with a hand key, determines whether you intended to send a dot or dash, and generates a precise dot or dash for your transmitter, with appropriate spacing. I expect one would have to be reasonably consistent to make the thing work, so one would have to assume that if the "Fist Fighter" can read your sending, a human ear should have no trouble. "Fist" is usually defined as a distinctive sending style, and as such is something to be frowned on — every operator's goal should be to send "copper-plate" morse which is not distinguishable from perfect, computer generated morse, so this is the area where the "Fist Fighter" should be of most benefit. In other words it enforces a discipline on the user, and ultimately trains one to send code so well that aids are no longer needed.

The second level of electronic keyers generates strings of dots or dashes depending on whether the paddle is swung to right or left. The length of time the paddle is held over determines the number of dots or dashes generated.

The iambic keyer represents the state of the art at the present time. Any number of frills, bells and whistles are available, but as a keying method, iambic is of tremendous significance. The keyer is actuated by separate dot and dash paddles, but when both paddles are held over at the same time, the iambic keyer generates a pattern of alternating dots and dashes. That's where the name iambic comes from. It is a term used in poetry to describe a "meter" or rhythm consisting of a pair of syllables, the second of which is stressed. For the record, if iambic meter is reversed, with the first syllable stressed, it is dactylic, and an iambic keyer sends dactyls if the dash lever is actuated in advance of the dot lever! With a view towards making this all clearer, here is an example of iambic meter: "In days of old, when knights were bold . . ." A technique called scansion is used to analyze the meter, and the line breaks up like this: in days / of old / when knights / were bold . . . The rhythm is often described as "de dum de dum de dum de dum, or by extension, dit dah dit dah dit dah dit dah . . . get it?"

To send SK with a hand key requires twelve separate up or down movements. To send it iambically, the dot paddle is held over and the dash paddle is kicked in at the end — for a grand total of four movements:

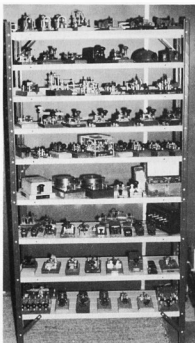
1 — press dot 2 — press dash 3 — release dot
4 — release dash.

It sounds complicated, but the fewer the required movements, the easier the keying becomes, and great speeds are possible once you get the hang of it. Most people start off using an iambic keyer non-iambically (they depress one paddle at a time and don't use the combinations available with a squeeze) and then find their way into iambic keying as time goes by.

Now that you know all there is to know about iambic keying, we'll get down to cases next month and talk about paddles and keyers.

Till then — 73.

AN



Part of David VK6WT's Morse Key Collection. David has more than 100 keys spanning 100 years from VK, ZL, G, W, UA3, DL and JA.

Photo by David Couch

QSP



WATCH YOUR LANGUAGE PLEASE!!

A letter received from a VK5 amateur has brought our attention to possible breaches of the regulations in respect of unseemly language being used by some novice operators in the 80 metre nightly "Cocktail Net".

Our correspondent writes " . . . one particular 'N' call amateur leaves a lot to be desired, and whilst I believe I am fairly broadminded having served in three of HM forces in WW2. I really don't think the verbiage used is in the best interests of amateur radio, and our image. Nor is it an example to be followed by newcomers to our bands . . ."

Gentlemen, be warned "Public Bar talk" will not be tolerated on the amateur bands, and loss of your licence will result if it persists.

— VK3UV



**PLEASE HELP
WITH INTRUDER
WATCHING**

EMC (Electro Magnetic Compatibility)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

**FORWARD DETAILS TO
VK3QQ,
Federal EMC Co-ordinator, QTHR.**

SPOTLIGHT

ON SWLing

Robin Harwood VK7RH

5 Helen Street, Launceston, Tas. 7250

OVER THE HORIZON RADAR

My remarks in the January column, regarding the "Woodpecker" or Over the Horizon Radar, has elicited enquiries for the operating times and frequencies, together with the location of the various sites employing this mode. As I stated in my reply, it is virtually impossible to predict the times or frequency usage, as I have been unable to work out a pattern or organization to their operations. They just seemingly plonk down unexpectedly on any HF channel, whether it be occupied or not. Yet there appears to be an effort by all OTHR users to avoid using maritime and aviation HF allocations.

There are several known locations in the USSR and the North American continent, as well as one site pretty close to home. As the sunspot index is declining, the "Woodpeckers" will increasingly be observed on lower frequencies, although they have not been heard much below 5 MHz.

Have we seen the peak of operations of the "Woodpeckers"? They do seem to be dropping off, or alternatively their transmission time per channel is being reduced, in order to minimize communications disruption. With the rapid development of digital pulse transmission techniques, OTHR could be obsolete very quickly. As well, it does need quite a deal of energy. Let us hope that it can be reduced or refined so that HF communications can proceed.

FREQUENCY ALLOCATIONS

As from the 16th of December, the allocations of 18.068 to 18.168 MHz and 24.89 to 24.99 MHz became available to full call amateurs. Both of these bands are shared with the fixed and commercial services, who are the primary service. Amateurs have only secondary rights and should not cause any harmful interference to primary service stations, nor are they protected from any interference from them.

HOME AGAIN

Since my return from holidaying in Queensland, I have only briefly been able to listen on these new WARC allocations. Amateur activity on 18 MHz has been virtually nil, as there are plenty of commercial and fixed stations utilizing this band. And on 24 MHz, the only station I have heard and worked on CW has been Graham, VK6RZ in Perth. When overseas administrations do release these frequencies to amateurs, I expect that interest will pick up.

We are also permitted now on 40 metres to operate up to 7.3 MHz. This is to be

shared with the broadcasting service, and there are very few channels vacant in the evening hours. However, contacts are being made with Stateside stations for the first time on their own operating frequencies. The increased band also gives us more room for daytime QSOs.

Also permission has been given for Australian amateurs to operate between 3.794 and 3.800 MHz — the so-called "DX" window. I do believe that some very good contacts have taken place, yet it should be remembered that this, being a narrow allocation, should be kept clear for DX operators and not used as a local chatter channel. That can be easily done further down on the existing allocation.

COMPARISONS

As mentioned previously, I spent the Christmas period vacationing in sunny Queensland. As I did not have much time to do any serious listening, what observations I was able to make, confirmed that there is a difference in propagation between Tasmania and Queensland. For example, signals from the Caribbean region were heard fairly well at 1200 UTC, yet there are signs of propagation to that region from this location. Naturally Asian signals were very strong, coming in a lot earlier than they do here. As well there was propagation on 11 and 15 MHz from SE Asia in daylight hours, plus some Pacific Island outlets on 9 MHz. These are rarely observed in Tasmania in daylight. Sometimes they are heard in the winter months in the late afternoon.

But I found that listening below 9 MHz in the evening hours is out of the question, because the incessant lightning crashes rendered the intelligibility of the signals to zero. As well, one has to be prepared to rapidly make sure that your antennas are thoroughly grounded, in semi-tropical or tropical regions such as Brisbane. Some of those spikes can do quite a lot of damage.

I was able to go to one of the local radio clubs whilst there. I attended the Gold Coast Radio Society and was invited by Ken VK4KD, the local President to speak about the Handicapped Aid Programme, of which I am the National Co-ordinator.

CHANGE OF QTH

Radio Australia, the Overseas Service of the ABC recently moved its operations from Lonsdale Street to the outer Melbourne suburb of East Burwood. They were formerly cramped in an old building which, I believe, was at one time a biscuit factory. It now has modern, up to date studios from

where they can produce their programmes. As well, the Darwin Relay Site is likely to be re-commissioned in the near future, together with the up-grading of the existing transmitters at Shepparton (Vic) and Carnarvon (WA).

RELAY TRANSMISSION

As you probably were aware, during the Commonwealth Games, Radio Australia transmitted special reports on the activities via the facilities of the BBC in the UK together with some of their relay bases. This could be done again in the future, on a shared basis with another international broadcaster, who would, presumably, gain access to use RA's transmitters to broadcast to the Pacific region. Such arrangements presently exist with Radio France International for them to send programming in French on a weekly basis. You can hear them on 6.045 MHz at 0945 UTC Fridays after Radio Australia concludes their special programmes directed to Antarctica.

DXPOSITION

The Australian Radio DX Club is holding a DXposition on Easter Saturday, the 2nd of April. It is going to be held at the Radio Australia studios, which are approximately fifteen kilometres from the city centre. Highlight of the DXPO '83 will be the attendance of four DXers from the Japan BCL Federation — one of the leading SWL clubs in that country. For further details you should get a registration form from ARDXC DXPO '83, PO Box 300, Blackburn, Vic. 3130.

SOVIET PROGRAMMES

In the course of listening around the bands, you have probably encountered SSB relays of Soviet Home Service programmes. These point to point transmissions are, presumably, designed for the Soviet Naval and Merchant Marine, or Soviet personnel working throughout the world, including the polar regions. The audio quality of these links is superior to that obtained from the normal AM channels, mainly due to good processing. All programmes are in Russian or other Soviet languages although the North American Service in English has been heard on SSB. One channel with excellent signals is 13.820 MHz at 1200 UTC, where they are strong and clear.

Well, that is all for this month. Until next time, the best of 73s and good DXing!

Robin VK7RH

AR



AMSAT AUSTRALIA

Bob Arnold VK3ZBB

41 Grammar St. Strathmore 3041

NATIONAL CO-ORDINATOR
Chas Robinson VK3ACR

INFORMATION NETS
AMSAT AUSTRALIA
Control: VK3ACR
1000 UTC Sunday on 7.064 MHz.

AMSAT PACIFIC
Control: JA1ANG
1100 UTC Sunday on 14.305 MHz

AMSAT SW PACIFIC
Control: W6CG
2200 UTC Saturday on 28.880 MHz

ACKNOWLEDGEMENTS
AMSAT Satellite Report
AMSAT UK
VK5AGR

Basic Orbital Data can be obtained through the AMSAT Australia Net by both participating stations and listeners.

UoSAT PAPERS

"The Radio and Electronic Engineer" is the journal of the Institution of Electronic and Radio Engineers (England). It has devoted its entire August/September 1982 issue (Vol 52 No 8/9) to "UoSAT — The University of Surrey's Satellite (an investigation into cost — effective spacecraft engineering). The journal carries about 100 pages and contains twelve papers by various authors associated with the project.

OPERATING PROCEDURES FOR THE 'RS' SATELLITES

I am indebted to David Rankin 9V1RH/VK3QV for a translation of an article which originally appeared in the Russian amateur journal "RADIO" for July 1982.

The article is by Leonid Labutin UA3CR and has been translated from the Russian by Dexter Andersen W4KM. New information is contained in the text which should assist amateurs to make even more successful contacts with the RS group of satellites.

"PARTICULARS OF QSO's VIA SATELLITES" by Leonid Labutin UA3CR

Some of the general recommendations and rules for conducting satellite QSOs given in

RADIO #1/1979 are repeated here:

- A lay-over (transparency) containing a path diagram should be prepared (RADIO #3/1982);
- A timetable of satellite passes over a specific geographical point should be drawn up;
- An overall evaluation should be made of reception conditions, and one should not go on the air if the signal level of the satellite is too low since this will only use up a communication channel for no good purpose;
- Both receiver and transmitter must have well-graduated scales, substantially reducing the time needed to search one's own signal;
- The receiver must have smooth tuning, permitting the tracking of frequency necessitated by the Doppler effect;
- The transmitter power must be able to be regulated over a broad range;
- Call CQ in 12 to 15 second bursts with pauses of the same length — in the majority of cases you will be called during your transmission since communication via satellite is duplex; on hearing a call you should stop transmitting.

There exist several specific particularities relating to operation via the "Radio-3" through "Radio-8" satellites, principally relating to the presence of regular signal fluctuations characterized by a period of 0.5-1 second and a dip of over 20 dB.

WHEN TO OPERATE VIA THE SATELLITES

To select optimal conditions for satellite operation, one should monitor the regular fluctuations caused by the satellite's rotation around its own axis (in the course of which the directivity pattern as well as the receive and transmit antenna polarization planes rotate) and also by the rotation of the radiowave polarization plane in the ionosphere (the Faraday effect) and other factors. The rotation axis of the satellite maintains the same position over an extended period of time thanks to the gyroscope effect.

To get a clear idea of the phenomena governing the regular fluctuations in the radio signal, it is necessary to form a precise picture of the movement of the satellite around the Earth and its rotation around its own axis. Let us examine several possible combinations of the position of the satellite's own rotation axis and the orbital plane, and also examine how the receive signal level changes as a function of this. (We shall not for the time being consider the turning of the satellite's receiving antenna, which is legitimate in monitoring beacon signals. The turning of the satellite's receiving antenna will produce analogous changes in the signal

received by the satellite, and in the repeater mode fluctuations will be determined by the sum of the inequalities in the satellite's receiving and transmitting antenna patterns.) We shall assume that the satellite's transmitting antenna has a distant directional pattern similar to a toroid dipole, with minimum radiation along the axis of the dipole and maximum radiation perpendicular to it.

1. The satellite's own rotation axis coincides with the axis of the transmitting dipole and is perpendicular to the plane of the satellite's orbit. In this case regular changes in the signal are not observed, and the signal level mainly depends on the inclined distance (the straight distance between the Earth station and the satellite) and may vary within 9 dB in zenith orbits.

2. The satellite's own rotation axis coincides with the axis of the dipole and lies in the plane of the satellite's orbit. When the satellite passes through the communication zone the antenna turns continuously relative to an observer on Earth. A related phenomenon is that a minimum signal will be observed at every geographical point along the subsatellite path, at a specific time.

3. The satellite's own rotation axis is perpendicular to the axis of the dipole and to the orbital plane. Given this arrangement, a change of signal level is observed with a frequency of twice that of the satellite's rotation about its own axis. The change in the signal is at a maximum along the subsatellite path and lessens as the distance from the path increases.

4. The satellite's own rotation axis is perpendicular to the dipole's axis, and lies in the satellite's orbital plane. Under these circumstances the amplitude of regular fluctuations varies continuously. If this is examined from the point of view of the receiving antenna on board the satellite, it becomes clear that precisely in this situation it is easiest of all to communicate with the robot and to record information on the bulletin board.

The above data are approximate only, having been gathered using simple antennas and receiving equipment. A multitude of possible intermediate situations exists, involving a more complicated calculation of signal-level changes. Deep and frequent fading occurs also as a result of the mechanism of radiowave propagation and the satellite's movement in orbit; here not only the amplitude of the fading changes but also the period, which differentiates this phenomenon from fading due to the rotation of the satellite.

A relatively stable and slowly changing signal level from the satellite beacons implies

that the satellite's own rotation axis is close to the axis of the transmitting dipole. Monitoring of signals that have passed through the repeater and of the robot's reaction to incoming signals are indications that the receiving antenna is rotating in a plane perpendicular to the satellite's own (as described in cases 3 and 4). The more such monitoring results are accumulated, the more precisely it will be possible to determine the interrelationship between the satellite's rotation axis, its antennas, and the orbital plane, and hence the most favourable orbits for radiocommunication.

OPERATION THROUGH THE REPEATER

Telegraph signals suffer least of all under conditions of deep fluctuations. Practice shows (and theory proves) that the stronger the fading and the weaker the signal, the slower the sending must be. A sending speed of 60-70 characters per minute may be considered normal, only occasionally increasing it to 100 CPM, and when working QRP dropping to 40-60 CPM.

The power radiated toward the satellite must be regulated in such a way as to avoid the peak level of the repeated signal from exceeding that of the telemetry beacon. When this is exceeded, the ARU system of the repeater begins to operate, and the signal level of the remaining station will "breathe" in synchrony with the turning of the satellite and with keying of the powerful station. The level of its own signal will change slightly.

Fluctuations affect the intelligibility of SSB signals substantially more. Sometimes whole words disappear. Hence when there are deep fluctuations it is advisable to pronounce words slowly, drawing them out as in a drawl, repeating the most important parts several times.

COMMUNICATION WITH THE ROBOT

Conducting a QSO with the robot is the most complicated procedure.

In order for an operator to have a QSO with it, all others must stand by patiently. The slightest interference can interrupt a QSO. Often operators create interference by tuning their transmitters on the robot's frequency. Correct operation presupposes the presence of a well calibrated transmitter exciter or a digital frequency meter and a table or graph showing the Doppler frequency shift. Variance from the calculated frequency should not exceed ± 0.5 kHz.

To make a contact with the robot, it is necessary to fulfill the following conditions:

- There must be no interference in the receive channel exceeding the threshold of the satellite receiver;
- the signal level from Earth must exceed the activation threshold of the satellite receiver;
- the signal's frequency must be situated in the passband of the satellite receiver;
- sending must be precise and without error.

If due to fluctuations the radiated power cannot compensate for dips in the antenna directivity diagram, it is necessary to stop trying to communicate with the robot in order not to bother others.

— it's necessary to observe the correct procedure for calling the robot; for example

"RS5 DE UA3XBUR AR", and by the way the combination AR is sent together. If the call is received incorrectly by the robot, either no answer will follow or an answer will be given in the form of a coded phrase. If the robot received the call correctly, it answers, for example, thus: "UA3XBUR DE RS5 UR QSO NR 012 UA3XBUR DE RS5 NR 012 OP ROBOT TKS FR QSO 73 SK". With this the communication is ended, and you should not send the robot 73, thanks for the QSO, goodbye, etc, thereby occupying the channel and bothering others. The robot enters your call-sign in the on-board log, and during the regular "dumps" from the on-board log on command from Earth you may check on the correctness of the QSO. The capacity of the on-board log (its electrical memory) is 64 communications, and its memory capacity for numbers is 999. During the transmission by the robot of CQ don't tune in its receive channel, thus creating interference. During the robot's reply, its receive channel is switched off, so that tuning in this channel is all the more useless.

Communication with the robot may be conducted if the call-sign of the station calling consists of not less than four and not more than six characters.

The nominal input frequencies of the robots are 145.828 MHz for RS-5 and 145.836 MHz for RS-7.

SATELLITE STATUS REPORT

AMSAT Oscar 8 will celebrate the Fifth Anniversary of its launch on 5th March. At this time the satellite will have completed some 25 471 Earth orbits.

It has been reported that a problem may have developed with the battery charge, consequently the battery condition will have to be carefully monitored. Otherwise the satellite is working well and giving good service.

The A08 Mode 'J' transponder is being used in a unique way to test the system for determining Phase IIIB orbital parameters from AMSAT's own range measurements. The Phase IIIB command modem is operated through the A08 transponder. The subsequent processing of the ranging signals is quite involved and is outlined in Edition 48/49 of ASR.

The RS series of satellites continue to operate satisfactorily in accordance with their previously advised schedules. It has been suggested that the beacon frequency of RS6 has moved on occasions but this report has not been officially confirmed. UOSAT Oscar 9 is still held under tight rein by its controllers. The satellite is now virtually at its planned attitude and its spin has been substantially reduced to a level where early deployment of the booms may be anticipated.

Telemetry transmissions have been restricted to weekends and since new year have been available during the Australian afternoons. An added bonus in recent weeks has been the synthesized speech experiment which has operated alternately with the ASCII.

Through a 120-word speech synthesizer telemetry, orbit ephemeris data and general

news can be encoded in 'English' and relayed via the general, engineering or 2.4 GHz beacons using nbfm. Although the satellite and its controllers are all European the synthesized speech signals have a distinct American accent; it seems that synthesizers are reared and educated in the USA. The SHF and microwave beacons aboard UO9 have recently been activated and found to be in good working order. These beacons operate on 2.401 GHz and 10.47 GHz respectively. The SHF beacon will transmit similar data to the VHF General Beacon on nbfm. The Microwave Beacon will transmit a steady tone.

NEW CONTRIBUTING EDITOR REQUIRED

After quite a few years of writing these notes I shall relinquish my position as Contributing Editor on satellites effective from the June edition.

This will give me an opportunity to write a series of in depth articles on the subject of satellites with, I hope, assistance from experts in specialized fields.

It will also, and perhaps more importantly, provide an opportunity for a younger enthusiast to make a tangible contribution to this interesting side of our hobby.

If you are willing to assist please let the editor of 'AR' or myself know as soon as possible.

Page 3 AR

BOOK REVIEW

MINI/MICRO SOLDERING AND WIRE WRAPPING

Walk into any electronic parts distributor or computer store, and you can obtain books relating to almost any technical situation, from the simplest to the most complex subjects, and projects.

However, a book not usually found is how one actually goes about fastening individual components together, or how to remove them during repair and troubleshooting.

This book attempts to fill that void. Its four chapters cover information on the three methods of fastening, fastening new circuits, unfastening/refastening existing circuits, and some basic techniques for troubleshooting and repairing electronic equipment.

The book contains one hundred and twelve internal pages and is most descriptive with pictures and diagrams throughout.

A most useful addition for your amateur library.

Available from Stewart Electronics Components Pty Ltd, 44 Stafford Street, Huntingdale Vic 3166. Cost is \$6.00, plus postage \$1.00.

VK3UV
AR



HERE'S RTTY!

Bruce Hannaford VK5XI
57 Haydown Road, Elizabeth Grove, SA 5112

CHOICE OF RTTY GEAR

Choosing the right RTTY gear is like choosing a wife. A lot of careful thought before hand can save much distress later. I don't intend to tell you what to do but will instead outline the main considerations in a non technical way.

Firstly the choice of a suitable transmitter, receiver or transceiver. On the HF bands Frequency Shift Keying (FSK) is normally used. Some modern transceivers have an inbuilt FSK facility but many SSB transceivers lack this feature. With such SSB transceivers FSK can be generated by feeding pure audio frequency tones into the mic socket or phone patch connections. The result will be a true FSK transmission if no audio distortion is present in the tone oscillator or in the transceiver audio circuits.

When an "audio generated" FSK transmission is used the transceiver must, in addition to having low audio distortion, also have very good carrier and unwanted side band suppression. Most modern transceivers will meet this requirement and thus will be suitable for both SSB and RTTY.

In a transceiver having FSK fitted the carrier frequency will be keyed up and down slightly by the RTTY terminal equipment using DC pulses for this purpose. On HF bands this latter system is preferable as there is much less chance of spurious RF outputs.

In either case, when a basically SSB type of transmission is used, the power output must be kept low because of the continuous carrier needed for RTTY. Usually the RTTY power output will be a little less than half the normal peak power of CW or SSB.

If you decide to use a linear to raise the transmitter power, remember that the distortion products will also be amplified and this is a most important consideration when using "audio generated" FSK. Personally I doubt if a linear should be used with "audio generated" FSK transmissions, much better to use a "DC switched" FSK system and largely avoid the problems of spurious outputs.

By the way "linears" don't have to work in a linear fashion when amplifying RTTY and it is a good idea to fit them with a bias switch giving extra bias for class C operation when using RTTY.

Before we leave the HF scene two more important points must be mentioned. Firstly

RTTY requires very high stability both in transmission and reception. Equipment considered perfectly stable for SSB or CW may not be good enough for RTTY. A frequency drift of say 50 Hz may be enough to lose a RTTY signal with some types of terminal equipment.

Secondly, although in reception RTTY audio tones are normally only 170 Hz apart CW filters may not be workable as the required RTTY tones are normally 2125 and 2295 Hz and most transceivers with the CW filter switched in produce beat notes of about 800 Hz! A transceiver with normal SSB pass band and IF shift may well be more useful than one with a CW filter.

On the VHF bands the situation is somewhat different as most RTTY is transmitted using FM transmissions. The audio tones remain at a constant pitch even when the receiver is well off tune and the volume is thus reduced. This system is called Audio Frequency Shift Keying (AFSK) and in passing you might note that this same type of RTTY and audio fed into a SSB transceiver produced FSK output.

With AFSK transmissions you need a tone oscillator that is keyed by the required RTTY code, however the keying is not on/off keying, it is change of pitch keying of the two audio tones used. At all times one or the other tone is present, the keying merely changes the pitch from one to the other.

Usually FM transceivers can be run at full power on RTTY as they are being used in their normal way, however RTTY overs tend to be longer than speech overs and in some transceivers this may cause overheating.

Because of the lack of drift problems using FM RTTY a signal once tuned stays that way. A receiver can be left running untuned to a RTTY channel connected to printing equipment that will automatically start up when a signal is received.

This auto start system is used by many people who even leave equipment running

twenty-four hours a day. Messages can then be received even in the absence of the operator who, when he gets around to reading same, can reply in like manner even if the other operator is not available. This is a very interesting system that does not tie you down to exact times like a sked.

The information received can be recorded on paper, a magnetic tape recorder or in a computer memory. I note many people are using mechanical printers for this purpose.

Of course it is also possible to use FSK RTTY on VHF and a few are doing this mainly on 6 metres. If such a system is used it goes without saying exceptional stability is required and most other remarks made for HF FSK will also apply.

Let us now turn our attention to Terminal Equipment. Briefly this is those extra bits of gear needed to make your CW/SSB station a RTTY station.

Terminal equipment may be a single complete unit or a number of separate units. In receiving, the terminal equipment receives audio signals from the receiver voice coil or headphones jack, interprets these and passes them on to a paper printer or VDU screen. When transmitting a type-writer type keyboard is used to control the generation of coded signals that either finish up as two audio tones to modulate the transmitter or as DC pulses used to directly shift the transmitter carrier frequency.

Basically there are three types of terminals. A mechanical terminal, a communications computer terminal and a "home" computer terminal.

The mechanical terminal uses a teleprinter type machine such as have been used for many years in Post Offices and many of these are still giving good service in amateur stations. The machines were of course designed to work through land lines using a rather high current and voltage so some additional interface equipment is needed for radio use.

For transmission, a modulator is used for generating tones and for reception, a demodulator that converts the received

audio tones to DC pulses to work the printer is needed.

The mechanical printer is by far the cheapest and can give quite good results on a single RTTY speed.

The communications computer is a "dedicated" computer. That is it is dedicated to one task, namely that of sending and receiving RTTY or CW signals. Such a computer normally has all the necessary terminal equipment in the one package except that a VDU is often a separate item. The VDU most often used is a standard portable B/W TV receiver as these are cheaper than a normal VDU.

Comparing the mechanical gear with the computer the computer does offer much greater operating convenience and as a self-contained unit it requires a minimum of interconnecting wires and so is very easy to get going. It will normally operate on several RTTY, ASCII and CW speeds and has memory capacity which can be very useful.

Perhaps the greatest operating advantage of the computer is noted when sending mixed letters, figures and punctuation marks. Eg. when using a mechanical system to send a figure in the middle of a group of letters you must first use the figures key then send the required figure and then use the letters key before continuing with more letters.

You will note three key tapping movements were required to send the one figure amongst a group of letters. With the computer there is a separate key for each figure and you simply tap the right key and the computer does the rest automatically. One movement instead of three! A time and motion study type would be ecstatic with delight at such saving of work movements.

The "home" computer does not really offer many advantages over the communications type as far as the actual sending and receiving of RTTY is concerned, however it will be useful in many other ways as well. If you have a use for a computer in its own right, quite apart from RTTY, it might then be well worthwhile considering as a reasonable proposition.

As a "home" computer is not normally intended for RTTY use it will need special interface equipment and a special programme for RTTY use.

In conclusion I trust this has been helpful to those who are considering using RTTY and also informative to other amateurs who like to be well informed concerning all modes available to them. The foregoing has been written in a non technical way using some very generalized statements that are normally true but perhaps omitting some details that my more technically minded friends, might regard as very important. I hope such will forgive me.

At the moment most material has been aimed at non RTTY operators, but it is my intention to become more technical after the ground work has been completed.

73 Bruce VK5XI

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EDUCATION NOTES

Brenda Edmonds VK3KT
Federal Education Officer

56 Baden Powell Drive, Frankston, Vic. 3199

From time to time I overhear comments on air about education matters in general and exams in particular. Some of these come directly or indirectly from operators who have recently sat an exam, or from class instructors — others came from members with strong views on such matters. Some are criticism of particular exams or questions, others query the whole exam concept or techniques.

But in the time I have held this position I have had only half a dozen or so direct comments. PLEASE — don't just whinge on air. If you (or a friend) have a genuine complaint about a particular paper or question, let me know about it and I will make enquiries. Write down your complaint, or what you think the question said, tell me why you are complaining, and send it to me (QTHR).

The Wireless Institute has arranged with DOC for me to have access to copies of the exam papers used, so I can check on any that are queried. If there is genuine cause for complaint, the matter will be rectified. However we should all be aware that the recent examinee retains a very biased memory of the exam and questions — in many cases the recalled question is quite different from the original.

Of the papers I have seen so far, I do not think the average of "doubtful" questions would be any more than two per paper.

If you have strong views about the direction education should be taking — again, please let me know.

The two syllabuses will shortly be undergoing revision — any input will be welcome. Alternatively you can forward your ideas to the executive via your local division. Does

your division have a defined policy on education and an active Education Officer? I have had little evidence of such from some states. Perhaps this could be considered before the next Federal Convention.

If I am to be of service to all VK amateurs (or potential amateurs) I need to know what the divisions are doing. One thing I particularly need to know is what classes are being run and where, so that I can direct enquiries to the right contact.

Please make sure that your club secretary or class co-ordinator lets me know if classes are planned or in operation.

I would also like to hear from those selfless souls who are running "informal" classes for small groups, particularly in the country areas. There may be many ways I can help these enthusiasts.

Now that daylight saving has ended in Melbourne the Education net will run at 1100 UTC, Wednesday evenings about 3.685 MHz.

My idea of this net is to bring together class co-ordinators and education officers for sharing ideas about syllabus, teaching techniques and policies. It is not a "Brains-trust" to answer or pass exam questions. Of course it is not restricted to those mentioned, all ideas and comments are welcomed.

It has been suggested that there is a place for a "Braintrust" or an air class type of net in the Novice Bands. Who would be interested? How many would be willing to participate? Again, I would be interested to hear your ideas.

73
Brenda VK3KT

AR



QSP

AMATEUR AUTOMATIC TELEGRAPH TRANSMISSIONS

As a result of decisions reached at WARC-79 and representations from amateur groups, DOC advise that the use of telephony or Morse code will no longer be a mandatory requirement for identification purposes when using RTTY or ASCII transmissions.

In accordance with the provisions of Article 25 of the Radio Regulations of the ITU, identification may now be in one of the following forms:

- speech, using simple amplitude or frequency modulation;
- international Morse code transmitted at manual speed;
- a telegraph code compatible with conventional printing equipment;
- any other form recommended by the CCIR.

Accordingly, paragraphs 5.27 and 7.4 of the Amateur Operators Handbook will be amended to reflect these changes in due course.

AR

NATIONAL EMC ADVISORY SERVICE



Tony Tregale VK3QQ
National EMC Co-ordinator
38 Wattle Drive, Watsonia, Vic. 3087

UNITED STATES GOVERNMENT GIVES FCC POWER TO REGULATE EMI/RFI SUSCEPTIBILITY

House of Representatives Bill HR3239 (5008) Communications Technical Amendments Act of 1982 has been passed by the House, the Senate, and signed by the President — It is now Public Law 97-259. The Bill is similar to S929 the one introduced by Senator Barry Goldwater, K7UGA to amend the U S Communications Act of 1934. While the Bill contains several important provisions, one which is of special interest to the amateur service covers susceptibility. The FCC is given the authority to regulate the susceptibility/immunity of electronic equipment to EMI/RFI. This authority is required in order to stem the introduction of electronic devices which cannot function normally in the presence of EM/RF energy.

UNITED STATES CONGRESSIONAL RECORD Proceedings and Debates of the 97th Congress, second session WASHINGTON, THURSDAY, AUGUST 19, 1982 HOUSE OF REPRESENTATIVES

The following extracts from the Congressional Record has the legislative history of Public Law 97-259. The legislation was passed by the U S Congress as HR Bill 3239, and when President Reagan signed it on September 13 it immediately became Public Law 97-259.

Conference report on HR 3239, Federal Communications Commission Authorization Act of 1981.

Mr Wirth submitted the following conference report and statement on the Bill (HR 3239) to amend the COMMUNICATIONS ACT of 1934 to authorize appropriations for the administration of such act, and for other purposes.

Short Title "COMMUNICATIONS AMENDMENTS ACT OF 1982"

While the Communications Act of 1934 has been amended several times since its initial passage, it has never received a thorough technical overhaul and clean-up.

The Act still contains numerous instances of obsolete language, while imposing regulatory requirements and responsibilities upon the FCC which are no longer necessary in light of advancements in technology and changed circumstances.

INTERFERENCE WITH ELECTRONIC EQUIPMENT

Section 108(a)(1). The first sentence of section 302(a) of the Communications Act of 1934 (47 USC 302(a)) is amended by inserting "(1)" after "regulations"; and by inserting before the period and at the end thereof the following: "and (2) establishing minimum performance standards for home electronic equipment and systems to reduce their susceptibility to interference from radio frequency energy".

(2) The last sentence of section 302(a) of the Communications Act of 1934 (47 USC 302(a)) is amended by striking out "shipment, or use of such devices" and inserting in lieu thereof "or shipment of such devices and home electronic equipment and systems, and to the use of such devices".

(3) Section 302(b) of the Communications Act of 1934 (47 USC 302(b)) is amended by striking out "ship, or use devices" and inserting in lieu thereof "or ship devices or home electronic equipment and systems, or use devices".

(4) Section 302(c) of the Communications Act of 1934 (47 USC 302(c)) is amended —

(A) in the first sentence thereof, by inserting

"or home electronic equipment and systems" after "devices" each place it appears therein; and

(B) in the last sentence thereof, by inserting "and home electronic equipment and systems" after "devices", by striking out "common objective" and inserting in lieu thereof "objectives", and by inserting "and to home electronic equipment and systems" after "reception".

(b) Any minimum performance standard established by the Federal Communications Commission under section 302(a)(2) of the Communications Act of 1934, as added by the amendment made in subsection (a)(1), shall not apply to any home electronic equipment or systems manufactured before the date of the enactment of this Act.

A. Amateur radio service — The amateur radio service is as old as radio itself. Every single one of the early radio pioneers, experimenters, and inventors was an amateur: commercial, military, and government radio was unknown. The zeal and dedication to the service of mankind of those early pioneers has provided the spiritual foundation for amateur radio over the years. The contributions of amateur radio operators to our present day communication techniques, facilities, and emergency communications have been invaluable.

In the early 1920s, amateurs were relegated to the portion of the radio frequency spectrum that was considered at that time to be virtually useless: the short-waves below 200 metres. These short-waves that once were considered

useless are now occupied by marine and aviation, police and public safety, television and FM broadcast, international broadcast, and amateur services, to name a few.

Amateurs are pioneering still today. Space or satellite communications are a most important part of amateur radio. Through Programme OSCAR (Orbiting Satellite Carrying Amateur Radio), amateurs have been utilizing advanced technology from their relatively simple, inexpensive ground stations. Seven amateur satellites have been built to date by amateurs at their expense. The amateur space activities are playing an important role in attracting the young people of America to scientific fields.

Almost every nation has amateurs who communicate each day with fellow amateurs in other countries and on other continents passing vital emergency message traffic and acting as ambassadors of international goodwill. The modes of communication include Morse code telegraphy, telephone, teletype or teleprinter, television and facsimile. Equipment ranges from home-built transmitters and receivers using parts from discarded radio and television receivers and costing only a few dollars, to the most sophisticated equipment manufactured for commercial, government, and military use costing many hundreds of dollars.

There are approximately 400 000 amateurs in the United States and almost 900 000 throughout the world. At any time of every day, thousands of amateurs scattered throughout the world are listening to and communicating with fellow amateurs over distances varying from only a few miles within a city to thousands of miles across the world. It is the large number of amateurs dispersed around the world operating in the five high frequency bands that has made it possible to provide the first, and for some time thereafter, the only communication links between areas devastated by natural disasters — earthquakes, tidal waves, hurricanes, tornadoes, blizzards and floods — and the outside world.

Every amateur has earned his licence by having demonstrated his knowledge of radio theory and application, International Morse Code, the Communications Act, and the regulations of the Federal Communications Commission. Entry into amateur radio usually is through the Novice Class. Amateurs are encouraged to increase their knowledge and skills by a series of five classes or grades of licence, all but one with limited operating privileges.

The Amateur Radio Service has been praised for being self-regulated. The Commission has reported that less time has been devoted to monitoring and regulating the Amateur Service than to any other service because of its self-policing and discipline.

One primary purpose of the Conference Substitute is to provide the Federal Communications Commission with the authority to implement various programmes which will result in improvements in administration of the amateur radio service and to cut the cost thereof. It will further allow the amateur radio service to continue its tradition as the most self-regulated radio service in the United States, and to become to some extent self-administered, requiring even less expenditure to government time and effort than in the past.

D. Radio frequency interference rejection standards — Radio frequency interference (RFI) arises when a signal radiated by a transmitter is

picked up by an electronic device in such a manner that it prevents the clear reception of another and desired signal or causes malfunction of some other electronic device (not simply a radio or television receiver). While almost any transmitter of any service is a potential interference source, Amateur or Citizens Band (CB) stations are very often associated with RFI problems involving electronic devices in the home.

Particularly since the advent of commercial television immediately following World War II, amateur radio operators have been active in interference control and elimination. The amateurs learned very early that the incorporation of good engineering practices in their transmitter construction, such as electrostatic shielding and filtering, minimized the possibility of interference by preventing the radiation of spurious signals. Such practices and techniques are well understood and are universally incorporated in transmitters manufactured and in use today, irrespective of the service. Appropriate rules of the Federal Communications Commission require all transmitters of all services, including the transmitting sections of transceivers, to suppress spurious radiation.

It has become evident that many interference problems involving home electronic equipment and systems are not fully resolvable through taking protective steps with the transmitting equipment, but that resolution of some interference problems may require action with respect to receivers and other electronic devices picking up unwanted signals.

Causes for interference to television reception, for example, can be divided into the following categories. First, although least common, is the pickup of a spurious (unwanted) signal having a frequency within or close to the band of frequencies occupied by the television signal. Such interference usually is caused by an interfering transmitter. In many instances, there is what is termed a harmonic relationship between the transmitter frequency and the television channel. That is particularly the case with the 27 Megahertz CB service; the second third harmonics (multiples) of the 27 Megahertz CB signal fall in TV Channels 2 and 5 respectively. It is generally recognized that no TV design can eliminate susceptibility to harmonic interference. Second is the overloading of the input circuit of the television receiver by an undesired signal so strong that overloading, i.e. malfunctioning, of the circuits generates spurious signals within the television receiver that interferes with the desired signal. Such interference usually is more severe with transistorized receivers and may result from poor circuit design in the receiver. Third is the pick-up of an undesired signal by circuits within the set or wiring leading to the set. Poor shielding or poor circuit design in the receiver is usually the culprit.

Interference to other electronic devices such as record players, hi-fi amplifiers, home burglar alarm and security systems, automatic garage door openers, electronic organs, and public address systems usually arises from the pick-up of a relatively strong signal by the external wiring, such as the wires leading to the speakers or to the power source, followed by the rectification of the signal by a circuit, contact or component within the device.

The cures for most such interference have been well known for many years. Often an

inexpensive filter in the lead from the antenna to the television receiver will reduce the interference to an acceptable level or eliminate it entirely. For the other electronic devices, the judicious installation of inexpensive capacitors (devices which prevent wiring from picking up undesired signals) may suffice.

Even though the causes and cures of radio and television interference have been known for many years, the number of complaints received by the Commission has grown steadily each year. With the rapid, and indeed explosive, growth of the 27 MHz CB service in the mid-1970s, the probability of a home electronic device being located near a transmitter of some sort has increased substantially. The public's use of home electronic devices has grown, and continues to grow, at an exponential rate.

Many manufacturers of home electronic equipment and systems have been willing to provide, often free of charge, filters for electronic equipment when a particular interference problem is brought to their attention. However, their efforts to voluntarily address the root problem by incorporating such RFI suppression techniques in the design and assembly-line stage have been less than adequate. This is true even though such filtering mechanisms and anti-interference design may only cost a few cents per unit.

Many believe that the Commission does not now have authority to compel the use of protective devices in equipment which does not emit radio frequency energy sufficient in degree to cause harmful interference to radio communications. Manufacturers and retailers also believe that the Commission cannot require a label on equipment or the supplying of a pamphlet of the possibility of interference and outlining corrective measures. The Commission has thus far acted in consonance with this belief. *The Conference Substitute would thus give the FCC the authority to require that home electronic equipment and systems to be so designed and constructed as to meet minimum standards for protection against unwanted radio signals and energy. Extensive amateur and Commission experience over the years with interference investigation and elimination supports the conclusion that, in most instances, satisfactory corrective measures can be simple and inexpensive. The Conferees by no means intends for major modifications and redesigns of equipment to be required, or that the Commission require steps to be taken which impose substantial additional costs or unnecessary burdens on equipment manufacturers. We do not believe that elaborate procedures will be necessary in order to achieve the desired result. Existing equipment and that manufactured prior to the date of enactment of this legislation will be exempt from any such standards as might be established by the FCC.*

The millions of purchasers of television and radio receivers and other home electronic equipment and systems each year deserve protection from interference. Significant reduction of interference from the multitude of complaints received each year by the Commission should result from enactment of this provision, as should lawsuits against amateur and other radio operators in local jurisdictions based upon interference. Section 7 of the Conference Substitute is viewed by the Conferees as necessary to address adequately this in-

creasing problem, which plagues so many of the nation's consumers. Moreover, by virtue of this section, the Conferees wish to clarify that the exclusive jurisdiction over RFI incidents (including pre-emption of state and local regulation of such phenomena) lies with the FCC.

INTERFERENCE WITH ELECTRONIC EQUIPMENT

House bill

The house bill contained no provision.

Senate amendment

The Senate amends Section 302(a) of the Communications Act of 1934 and authorizes the Commission to establish minimum performance standards for "home electronic equipment or systems" to take appropriate action in order to protect such equipment from radio frequency interference (RFI).

Conference substitute

The conference substitute adopts the Senate provision.

For many years, public complaints have persisted about radio frequency interference to consumer electronic equipment, such as television sets and radio receivers. This interference has often been attributed to transmissions from the Amateur and Citizens Band (CB) radio services.

The Conferees wish to emphasize that it was its hope that voluntary efforts by manufacturers to reduce RFI when possible, as opposed to the use of government regulation, would be sufficient. Devices designed and marketed for use in a commercial environment normally include necessary protection against interference and do not require Commission regulation. In the market for home devices, however, good faith industry attempts to solve this interference problem have not always been as successful. Thus, in view of complaints regarding home devices, the Conferees believe that Commission authority to impose appropriate regulations on home electronic equipment and systems is now necessary to insure that consumers' home electronic equipment and systems will not be subject to malfunction due to RFI. However, the legislation does not mandate Commission exercise of this authority; that decision is well within the technical expertise of the agency.

The Conferees intend that the Commission's authority apply only to "home electronic equipment and systems" likely to be found in a private residence and intended for residential use, as distinguished from devices intended for office and business use. Radio and television sets would be typical examples of equipment subsumed under the term "home electronic equipment and systems". Other examples include home burglar alarm and security systems, automatic garage door openers, electronic organs, record turntables, and stereo/high fidelity amplifier systems. Although this legislation is aimed primarily at home equipment and systems, it is not intended to prevent the Commission from adopting standards for such devices which are also used outside the home. Portable TV receivers and radios as well as medical alert devices, for instance, are intended to be covered.

A number of alternatives are available to the Commission in exercising the authority granted hereunder. The Commission could direct manufacturers of some types of home electronic equipment and systems to meet certain minimal

standards by incorporating an interference suppression capability into their devices before the equipment is offered for sale. On the other hand, the Commission may choose to require only a warning label on those types of home electronic equipment and systems for which the installation of filtering, shielding or other interference suppression components would be unreasonably costly in relation to the total price of the device, or where such installation otherwise is unreasonable or impractical. Such a warning could be given in a pamphlet or tag accompanying the equipment, and marketplace forces would determine the success of particular competitors who chose to rely on such warnings instead of actually building in the filtering devices necessary to fully protect against the interference.

The Conferees expect the Commission to exercise the authority granted herein, as it has exercised the authority granted under section 302 of the Communications Act of 1934, by balancing the cost of improving the performance of a device to particular levels against the benefit to be gained from requiring manufacturers to meet standards of various levels of stringency. In so doing, the Conferees expect the number of interference complaints recorded and investigated by the Commission to be significantly reduced.

The Conference Substitute is further intended to clarify the reservation of exclusive jurisdiction to the Federal Communications Commission over matters involving RFI. Such matters shall not be regulated by local or state law, nor shall radio transmitting apparatus be subject to local or state regulation as part of any effort to resolve an RFI complaint. The Conferees believe that radio transmitter operators should not be subject to fines, forfeiture or other liability imposed by any local or state authority as a result of interference appearing in home electronic equipment or systems. Rather, the Conferees intend that regulation of RFI phenomena shall be imposed only by the Commission.

Amateur radio needed a solution to the problem of its being blamed for the inability of electronic devices to reject unwanted radio signals. Consumers found it difficult to accept the concept that a TV or stereo could be a "source" of interference. ARRL leaders monitoring the political and technological trends knew that, with time, the RFI situation would only get worse. Amateur radio operators would bear more and more of the undesired blame for a growing RFI problem and local and state governments would bow to local political pressure and enact laws that would hamstring amateur operation. The FCC, however, did not have the authority to set minimum RFI-rejection standards for home electronic devices. Amateur radio needed a law that would amend the Communications Act to give the Commission this authority. Amateur radio also needed a law that would make it clear, once and for all, that matters involving RFI are preempted by the Federal Government and are not subject to regulation by state or local governments.

The ARRL wanted legislation, not compromises! "We know what the problem is; it's just the matter of doing something about it," they said.

And now something has been done! The FCC now has the authority to require that home electronics equipment will have to meet RFI susceptibility standards.

Congratulations to the ARRL and all those involved in this wonderful breakthrough for the Amateur Radio Service.

AR

WHERE DO IDEAS COME FROM?

When you sit down to home brew something new, something that has never been built before, you force yourself to use more of your mind than if you were eating, sleeping or catching a train. Supposing you succeed, you construct a gizmo that has never been built before and it does marvelous things. Why was it not already built? Why did history wait until now for this device to exist when it could have been around fifty or a hundred years ago.

For most part this situation exists because new gadgets are not constructed until an immediate need occurs or an innovation is stumbled across. The limiting factor is the human mind, as our educational system impresses itself upon us over a period of time, fixed ideas develop about what is possible and what is sheer fantasy.

Consider a squid that can play a piano, you would probably think that this is not possible but has anyone ever placed a squid on a keyboard and shown it the keys? Personally I could not be bothered, but the first step is to ignore the fact that it cannot be done and take a trip to an aquarium.

This type of thinking should be applicable to any sort of problem; when faced with a dilemma forget half of what you have ever learned and try again. Is this what Tesla did when he drop-kicked the lead acid battery and invented three-phase power. Only the ability to forget that a thing is impossible enables you to do it. How else could it be that you can fly a jet around the equator or land on the moon; which is of course absurd as everyone knows, the world is flat.

Ian Jackson VK3BUF in 'Gateway'

AR

THOUGHT FOR TODAY:

Low SWR is not proof of a good quality antenna system or that it is efficient. Lower than normal SWR exhibited over a frequency range by a straight dipole or a vertical over ground is a clue to trouble, in the form of undesired loss resistance.

AND... A THOUGHT FOR TOMORROW:

The radiator of an antenna system need not be of self resonant length for maximum resonant current flow; the feed line need not be of any particular length and a substantial mismatch at the line antenna junction will not prevent the radiator from absorbing all real power available at the junction.

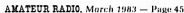
Ref: W Maxwell, QST June 1973

From Oxley Region Amateur Radio Club Magazine — "OXIALES" — Xmas 1981.

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[illegible]

Contact Brenda QTHR



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VK4 WIA NOTES

PRESIDENT'S REPORT 1982

For many years, amateur radio has been a growth industry. The magic milestones in VK4 of 500 members, 750, 1000, and now 1400 members have been reached and then left behind as more people join our Institute.

With this expansion, the administrative structure of the institute in Queensland has been stretched to the limit. At the 1980 AGM, it was recommended by some life members that members consider appointing a part time paid Secretary/Manager as the workload was too much for volunteers.

Since, council has tried to restructure our organization to avoid paid labour and to maximize the use of volunteer labour. So far we have been successful, and our membership fees as a result are by far the lowest in Australia. However, we will only be able to retain this volunteer status with the assistance of members throughout Queensland.

The institute affairs in VK4 are now divided into the running of the essential daily business and the policy making or management areas.

Council is ultimately responsible for the club, but mainly concentrates on the policy areas and allows other volunteer workers to concentrate on chosen specialities.

RETIREMENTS

1982 started with the retirement for a well earned rest for three members who have given their all to our hobby.

Alex McDonald VK4TE — the best treasurer this division has had — who guarded our finances and watched them grow ten times in eight years — our federal councillor for three years and a man who always urged us to think VK and not just VK4.

Tom Austin L40787 — our inwards QSL officer for four years, one of the most essential and yet most routine and time consuming tasks of any in our hobby.

Bill Gielis VK4ABG — Bill, transferred from Townsville to Brisbane, saw the Institute's critical need for assistance and took over as secretary. For several years he gave his all in almost singlehandedly running this division's administration.

INWARDS QSL

In January, Dr Murray Kelly VK4AOK, his parents Pat and Melita Kelly and their devoted helpers took over the inwards QSL bureau. The sunspot cycle may be waning but with the natural lag in QSLing, over 80,000 cards were despatched to licencees throughout Queensland. Inwards QSL cards are sorted into callsign order and then distributed through our regional clubs, through the monthly general meetings in

Brisbane (if arranged) or through direct mailing where postage credit exists. Because of the vast size of VK4 individual mailing of cards must always be provided. About sixty voluntary hours per week are given to the inwards QSL bureau.

OUTWARDS QSL

The outwards QSL bureau run by Mick and Chris Bently VK4AMB and VK4ABM despatched over 60,000 cards, including 3000 cards for AX4QCG. Thank you Mick and Chris for the fifteen hours a week you do not spend on air to ensure that VK4 cards go around the world.

NEWS AND INFORMATION SERVICE

We are a communications hobby, yet one of the hardest things for us to do is to communicate. Communications is a two way process and like most amateurs we sure can transmit well!

Every week Bud Pounsett VK4QY and his XYL Bonnie collate the weekly broadcast from a variety of sources.

This broadcast service, on nine different frequencies would be impossible without the co-operation of our rebroadcasters both in Brisbane and throughout the state.

A new innovation has been the use of page 739 in BTQ Ch 7 Teletext service where items of amateur radio interest are displayed by courtesy of that channel's affiliated radio club, another first for VK4 using new technology to publicize our hobby!

The divisional insert QTC has been published since 1927 and is arguably the oldest continuing AR publication in the world.

About twenty-five hours a week spent among more than a dozen members is spent on this division's transmitting service.

The often forgotten but equally important area of communications, receiving, is catered for in four main ways:

1. Our annual Radio Club Workshop where delegates from affiliated clubs throughout VK4 express their club's viewpoint.
2. Our club net every Tuesday 1930 EST on 3.605 MHz allows club representatives to express opinions on current topics. The Queensland net on Thursdays 1930 EST on 3.605 MHz allows individual members to express their attitudes.
3. By mail directly from members and clubs, council is kept well informed.
4. By the weekly HF callbacks after the news broadcast.

A further twenty-five hours a week is spent in this area of the VK4 division's activities.

PUBLICATIONS

Anne Minter VK4NRA has, with incredible efficiency, run the division's bookshop and a healthy profit of \$2,600 has resulted on a turnover of over \$13,500. Postage costs especially to the far flung areas of VK4 have risen significantly but as far as possible council is trying to provide equal services for our members wherever they live. About twenty hours per week of volunteer time are spent in running your bookshop.

INTRUDER WATCH

Gordon Loveday VK4KAL of Rubyvale and his band of helpers have again kept to a minimum the activities of intruders. A common example is the Japanese fishermen on 80 metres. Has your club appointed an intruder co-ordinator?

VHF ADVISORY COMMITTEE

Bill McDermott VK4AZM, for the second year, has ably led his committee, Brian Rickerby VK4RX, George McLucas VK4AMG, Paul Hayden VK4ZBV, Ed Roache VK4KAA.

Further repeaters are in the final planning stages for Weipa (146.800) Townsville (438.225), Rockhampton (438.025), Gladstone City (147.200), Gympie (147.100), Roma (146.700), and the Rum City Group's RTTY 2 m repeater at Bundaberg is receiving further consideration. Several beacons are under consideration including the Tropical Region VHF Group at Cairns proposed for 144.540, 432.540 and 1296.540 MHz.

The co-operation of the South East Queensland Teletype Group in the formulation of acceptable standards has been greatly appreciated and in this area much more work federally will be carried out in 1983.

DISPOSALS

Dave Laurie VK4DT and more recently Bill Dalgleish VK4UB have capably handled the profitable task of disposals.

About five hours a week are spent in collating, testing and packing these treasures.

HISTORIAN

Peter Brown VK4PJ enjoyed a well earned holiday for part of this year but still has produced an amazing volume of historical notes from information sent to him.

Part of Australia's heritage, in the form of the memories and memorabilia of our early amateurs, is rapidly becoming lost. Please, all you pioneers of radio, ensure your stories are recorded on tape, your photographs labelled, your books stored, and above all, that your relatives know what items are of future historical interest.

AWARDS MANAGER

John Moulder VK4YX and Trevor Knight VK4NLX of Warwick have quietly looked after this area of institute activities and several VK4 Award Certificates have been issued.

CONTEST MANAGER

Bill Sebbens VK4XZ of Townsville has again capably looked after this task. Bill has activated many clubs into participating in the Jack Files Sunshine State Contest but has now relinquished this position.

WICEN

Ken Ayers VK4KD has continued to co-ordinate WICEN activities throughout the State and the ever increasing activities of WICEN has provided invaluable publicity to our hobby. Congratulations Ken and to all the regional co-ordinators and WICEN officers throughout this cyclone-prone state. Countless numbers of hours are given to WICEN in VK4 and our image in the community has never been higher.

SLOW MORSE

Phil Aldred VK4CA together with a few other dedicated souls have tapped out slow morse sessions in VK4 for many years. Following an offer by Townsville Amateur Radio Club to assist in this area, council voted \$400 for the design, assembly and testing of several interface units to enable any amateur to use computer generated tapes and transmit perfect morse. It is intended for clubs throughout VK4 to transmit on 3.535 MHz a half hour session at 19 30 EST every day of the week.

MEMBERSHIP

Dave Richards VK4UG has, for many years, written to all new licencees inviting them to become part of the Institute. This year, Dave took over the full duties of membership secretary.

VK4 has for many years a membership percentage well above the VK average but until our percentage of members is 75% of the total of licenced amateurs in VK4 we will not be able to relax. Dave's efforts this year have shown pleasing results with our membership now being over 1400. Thanks for the twelve hours or so that each week you devote to this critical area of our activities.

CONCLUSION

To serve over 1400 members nearly one hundred and fifty hours of volunteer work is given each week of the year and this massive workload is spread among about 50 members throughout VK4. How about offering your help in 1983 and spreading the load a little further?

COUNCIL ACTIVITIES

Council has concentrated on being a management and policy making body.

MEMBERS

The Annual General Meeting was held in February and only ten members had nominated for the council of twelve. These initial team members were Rod Taylor VK4NBD/YRT, Harold Berneman VK4HB, Fred Saunders VK4AFJ, Ross Muzelburg VK4AQK, Claude Singleton VK4UX, Ken Ayers VK4KD, Jack Gayton VK4AGY, John Aarsse VK4QA, Guy Minter VK4ZXX and Ray Roche VK1ZJR. Of ten volunteers,

only five live in the Brisbane metropolitan area and the other five travelled at their own expense up to one hundred km each way every month to serve their hobby.

During the year, Barry Ker VK4BIK and Doug Charlton VK4JB joined the team and Ray VK1ZJR was transferred to VK3.

HIGHLIGHTS OF THE YEAR INCLUDE

Radio Club Workshop — Delegates from every affiliated club in Queensland are invited to attend our annual Workshop in April, and in 1982, thirty-nine club delegates and observers attended the live-in weekend at Griffith University. Assistance is given with travelling expenses for delegates who travel long distances. The cost of nearly \$2300 represents \$1.65 a member but the benefits to council and to members are immense. In VK4, because of the feedback obtained at the Workshop and on the Club Net, our council makes decisions based on the expressed wants and needs of the members. At the Workshop, our federal delegates have a dress rehearsal for the Federal Convention held in Melbourne a fortnight later and this ensures that the voice of VK4 is heard loud and clear by the rest of VK.

Ionospheric Prediction Service — Division took the opportunity in May to stage a seminar by Dr Leo McNamara of the IPS on ionospheric predictions. Somewhat to our surprise in these days of failing sunspot activity, only twenty members attended the excellently prepared seminar. However, as the majority of our members live outside Brisbane, lecture notes were forwarded to clubs where they were well received. The monthly prediction service compiled by Nev Wright VK4ANW from IPS data is a monthly highlight of our news broadcast service.

Federal Convention — Dave Laurie VK4DT and Guy Minter VK4ZXX attended and had been extremely well prepared by the Club Workshop. Because of prior discussions of the federal motions by VK4 clubs and the direct input available through the Workshop, VK4 members take an active interest in the Federal Convention and know that they play a vital part in THEIR convention.

Education Seminar — Ron Smith VK4AGS led this weekend seminar in July to "Educate the Educators" with the objective to improve instructional techniques in our clubs. Education is not just a matter of teaching theory to potential licencees but is a continuing process. Post licence education is essential.

Special congratulations must go to Rod Taylor VK4YRT/NBD for his efforts in the field of further education and we look forward to more seminars and a progressive uplift in standards generally.

Club Visits — Council members made themselves available wherever possible to visit clubs throughout the state. Clubs from Townsville to Roma had the opportunity to ask about the Institute directly from a member of council.

AX4QCG — The 12th Commonwealth QCCs were held in Brisbane from 30th September to 9th October. AX4QCG was

there and was heard all over the world. An incredible amount of organizing and preparing time was expended together with about \$2000 of the division's funds but immense goodwill was created for our hobby. Congratulations to David Jones VK4NLV and your band of thirty helpers.

Hamfest/Convention November '82 — We decided to invite the Federal President to fly from Melbourne to Surfer's Paradise for the weekend of our Convention. Bruce Bathols VK3UV agreed to come and flew into Brisbane on Friday night. On Saturday, Bruce attended the Hamfest/Convention and circulated among over five hundred amateurs, spouses and harmonics who attended.

At the Convention Dinner, the attendance was disappointingly small, but fifty members who attended thoroughly enjoyed the evening. Bruce, was our guest speaker but we were also pleased to hear Art Burton VK4FE talk about his experiences on Heard Island in 1949. Unfortunately, that evening was Art's last outing. He became a silent key on 30th November.

Political Lobbyists — Council's greatest success story this year has been in our contacts with Australian politicians. In these times of complicated technology too often we, as technicians, get carried away with the undoubted attractions of an argument based on technical facts. However the majority of decisions in a democracy are made by politicians, and politicians are not technical people. Too many facts confuse people and politicians are no exception.

Using information given to us by the Honourable Mr David Juli MP, Chairman of the Parliamentary Backbench Committee for Communications, the VK4 Council has become a powerful lobby group for amateur radio. In June we arranged for copies of an "Amateur Radio" article on Electromagnetic Compatibility (EMC) to be sent to twenty-five selected Federal politicians. This initiative has now been adopted Federally. As the introduction of the long awaited (and still awaited) Radio Communications Act loomed near, we intensified our efforts to ensure that our hobby would benefit from any changes. Cable Television, a potential disaster area for us all, also received much attention.

However we have maintained constant liaison with Federal Executive so that any action of ours supplements discussions that they may be having with the Department of Communications.

Conclusion — This has been a hectic year with many new and useful activities commenced. I thank everyone associated with the Institute for the effort they have put into being part of the team here in VK4.

However, volunteers for the many aspects of running our hobby are required. If you feel you can be of any assistance, please contact your Institute and join the team of people who are making your hobby more rewarding.

Guy Minter VK4ZXX
VK4 DIVISION PRESIDENT



VK2 MINI BULLETIN

Athol Tilley VK2BAD
PO Box 1066, Parramatta, NSW 2150

ANNUAL GENERAL MEETING

All financial members of the WIA NSW Division will receive, in early March, notice and agenda of the Annual General Meeting of the division.

Please consider the items carefully and, if you are unable to attend, forward a proxy nominating either an Ordinary member or the meeting Chairman to act on your behalf. If a ballot is necessary for Council, papers will be included with the notice of the meeting. It is in your interests to carefully consider the candidates you wish to represent you on Council and to return a correctly completed ballot paper. Read the instructions carefully.

As the questions before the meeting are of importance to all members, you should attend the meeting if you are able.

8th CONFERENCE OF CLUBS

This conference will be held at the WIA office in Parramatta on Sunday, the 17th of April, commencing at 10 AM.

Agenda items will close in early March so ask what items your club is submitting. The agenda will be sent to all affiliated clubs about six weeks before the Conference so the items can be discussed at club meetings.

COUNCIL REPORT

Divisional Council met on the 21st of January at the NSW WIA office at 109 Wigram Street, Parramatta.

A quote to produce WIA QSL cards for members was accepted, details appear elsewhere in this column.

Council decided to increase the Correspondence Course marking fees, as they had not been altered for several years.

Annual accounts for the financial year up to the 31st of December, 1982 were discussed and they were adopted. It was resolved that the division's fixed assets of furniture, fittings and radio equipment be valued and that the Director's Statement be adopted. Purchase of a filing cabinet for storage of club newsletters and publications in the library was authorized.

Thirty new applications for membership of the Division were accepted, a most gratifying total in view of current economic effects.

Federal Councillor Stephen Pall, VK2PS, presented a federal report. The use of AX21TU during WCY-83 by the division advised confirmation and it was decided to redraft the student uniform concession proposal for submission to the 1983 WIA Federal Convention.

Technical articles published in Amateur Radio by NSW members were judged and the best three articles selected for prizes (see AR Oct 82 p 48). This contest is to encourage submission of technical articles to AR by NSW members. The presentation

of prizes will occur at the Annual General Meeting of the division on the 26th of March.

The official opening of the Parramatta building was discussed and arrangements and duties were discussed. The Minister for Communications will be performing the opening ceremony and it is expected that amateur radio will receive considerable publicity during WCY-83 arising from this function.

An application by the Albert ARC to establish a repeater to cover the Condobolin area was discussed and approval was given for the application to be forwarded to DOC for processing. Irregularities in some repeater locations and infringements of regulations and conditions were discussed. Council is concerned that these operations will bring discredit upon the amateur movement. Groups operating repeaters and beacons are reminded that ALL conditions must be complied with and systems must not be placed on-air unless the licence has been received from DOC. T Mills is to present a report to council as to breaches of licence conditions and recommended action.

QSL CARDS

Following a suggestion by the Goulburn ARC, council has decided to make a QSL card available for sale to WIA members. They will have the WIA badge on the right hand side and a block for standard QSL information across the bottom. Space will be available so members can arrange to have their cards overprinted with their own call sign and address or use a rubber stamp. As no reference is made to the NSW Division on the cards, they could be used by members in other divisions.

The price is 5c per card plus postage and they are available in white with blue or black print, blue with blue or black print, green with black print or yellow with blue or black print. Send orders to PO Box 1066, Parramatta, 2150.

SLOW MORSE PRACTICE SESSIONS

These sessions are conducted by a panel of volunteer operators, on behalf of the NSW Division, every evening throughout the year on a frequency of 3.550 MHz for a period of one hour commencing at 0930 UTC. The callsign is VK2BW.

The regular operators are:

Monday — Don VK3AKN at Hawkesdale
Tuesday — Keith VK2NZM at Adamstown
Wednesday — Ken VK2BKE at Lord Howe Island

Thursday — Lloyd VK2BLK at Oatley
Friday — Jim VK2NDI at Pymble
Saturday — Steve VK2ESG at Deniliquin
Sunday — David VK2NAW at Golspie
Relief operation was provided by David

VK2PRA from Goulburn, Ross VK2BRC from Orange and others.

Speeds commence at 4/5 WPM and increase to about 12/15 WPM. It should be noted that these sessions are primarily to assist those attempting the CW examinations at 5 and 10 WPM.

Panel operators welcome enquiries regarding the sessions, or on matters relating to acquiring skill and expertise in the CW mode. Practice cassettes are available to suit individual inquiries. Such enquiries can be directed through the Institute office at PO Box 1066, Parramatta, 2150 or to the Morse Practice Co-ordinator, Ross Wilson VK2BRC QTHR.

The Institute would like to thank all panel members for their perseverance and skill, throughout the past twelve months. These sessions are indeed a very great service to amateurs, and to those aspiring to the amateur ranks.

Bon Voyage also to Marshall VK5FN (ex VK2DXP), our former co-ordinator, who now resides in Adelaide.

Notes from Ross, VK2BRC

HF SLOW MORSE BEACON

The Hornsby ADARC are interested in receiving comments to their proposal to establish a twenty-four hour automatic slow morse practice transmitter on HF.

The actual band has not been decided upon, but a suggestion made is possibly around 3.7 MHz.

Council proposes to place this question on the agenda of the AGM and has suggested that Hornsby present the matter to the WIA Federal Convention and the 8th Conference of Clubs.

Hornsby are interested in comments about their proposal and you can write to the club at PO Box 362, Hornsby, NSW 2077.

COFFS HARBOUR ADARC NEW OFFICERS

Following their AGM on the 17th November 1982, the club committee is as follows:

President — Max Francis VK2BMK
Vice-President — Harvey Ussher VK2DUJ
Secretary — David Harding VK2DUR
Treasurer — Percy Sara VK2QV
Publicity — Brian Lackie VK2DLM
Education — Rick Fletcher VK2BKV

URUNGA CONVENTION

The annual Urunga Convention will again be conducted by the Coffs Harbour ADARC over Easter 1983.

Registrations will be held at 7.45 PM at the Ocean View Hotel, Urunga on Friday, the 1st of April. Cost is \$10 for OMs, \$8 for the wives and \$20 for a family for the weekend. For one day only, the fees are \$7,

\$5 and \$15 respectively.

A full programme of radio direction finding events, disposals, displays and quizzes is available.

SATURDAY, 2.4.83 Urunga.

10.30 to 11 AM, 7 MHz hidden TX.

11.30 to 12.00 noon, 2 m 2 transmitter mini mitter hunt.

12.30 to 1.30 PM, Lunch.

2.30 to 3 PM, 2 m 2 transmitter pedestrian.

3.30 to 4.30 PM, 80 m talkin.

7.45 PM, Social evening at School of Arts with films, supper, disposals table and possibly new gear for sale.

SUNDAY, 3.4.83 at Bellingen Showground.

9.30 to 10 AM, Urunga scramble, any power! Any location, any frequency. Most stations worked in time.

10.30 to 11 AM, 2 m 2 transmitter pedestrian.

11.30 to 12.30, 2 m 2 transmitter mobile hunt.

12.30 to 1.30 PM, Lunch of hot meal and sweets provided by club.

2.30 to 3 PM, 2m 2 transmitter pedestrian.

3.30 to 4.30 PM, open time, think of an event!

5 PM, Prize giving and finish of convention.

Cooking facilities available if you wish to cook tea at showground after convention, meat and supplies will be available.

Accommodation is available at the Ocean View Hotel. Bed and hot breakfast for \$16 single and \$26 double per day. Early booking essential. Caravan park opposite hotel at Urunga.

The club address for enquiries is: PO Box 655, Coffs Harbour, NSW 2450.

COMING EVENTS

OFFICIAL OPENING OF WIA PARRAMATTA

OFFICE: 2 PM Saturday 12th of March.

ANNUAL GENERAL MEETING, WIA NSW

DIVISION: 2 PM Saturday the 26th of March at Granville.

URUNGA CONVENTION: 2nd and 3rd of April at

Urunga/Bellingen.

8th CONFERENCE OF CLUBS: 17th of April at

WIA Parramatta.

LIVERPOOL FIELD DAY: Sunday the 24th of April at Fairfield Showground.

WIA FEDERAL CONVENTION: 23rd, 24th and 25th of April in Melbourne.

NSW members and clubs are invited to submit news items for inclusion in these notes to WIA NSW Division, PO Box 1066, Parramatta, 2150 and mark the items "for Mini bulletin". Items for May AR must reach us by the 23rd of March.

Athol VK2BAD

AR

NEW ITALIAN QSL BUREAU

ARI QSL Bureau

PO Box 6

I-28024 GOZZANO (NO)

Italy

This is the new address for all cards to the Italian QSL Bureau.



QSP

CARE WITH THOSE TOWERS!

The following item appeared in the Radio Bulletin (EMDR) Nov./Dec. '82.

"Are you having tower problems? If so, consult the 'experts'. Dan, VK3DAN, and Gray, VK3DMI. They will tell you how NOT to wind down towers.

Dan 'Quixote' Renfree tried to slow his down by shoving his arm in the windmilling winch handle (broken in how many places Dan?). whilst Gray tried to plant his boom in the garden when the winch cable broke when tilting the tower over — stick to planting petunias Gray! Incidentally, both mishaps occurred on the same day.

Dan is using his enforced rest to work DXCC. Good luck, Dan."

Although a humorous anecdote, the message behind it is serious. Crank up/tilt over towers can be dangerous!!

Always use BOTH hands, keep children, adults and animals away from the danger area whilst raising or lowering. Have a firm and steady grip on the winch. Ensure cables are regularly greased. Inspect each three months for signs of corrosion, particularly the cables.

Prior to lowering the inner section, place a large piece of timber (at least 3" x 4") through the lattice work of the base section, at least eight feet above ground. This will break the 'fall' of the inner section should the cable snap and minimal damage will be caused.

If a mishap does occur, get out of its way quickly, do NOT attempt to stop the falling section by hand, or grasp the winch handle. Serious injury may result.

Editor

AR



FIVE-EIGHTH WAVE

Jennifer Warrington VK5ANW

59 Albert Street, Clarence Gardens, SA 5039

It obviously pays to be persistent. For two years John Ingham, VK5KG on behalf of the SA ATV Group, has been lobbying the Department via the Federal Executive, for permission to cross-link the two SA ATV repeaters. Firstly permission was granted for WIA broadcasts and WICEN use only, but now permission has been received for open experimental use, until November, when a full report will be sent to DOC.

Wearing his other hat, that of Federal Video Tape Co-Ordinator, John also reports that all programmes held by him can now be copied onto Eumatic, VHS, and Philips N1500 formats. Apparently the saving on postage costs since using VHS is quite remarkable.

We are still looking for volunteers to help Dick Boxall VK5ARZ, with the equipment supplies, at the monthly meetings. You probably think of it as ESC but the 'C' stands for Committee and currently Dick is all the committee we have, and is currently doing the job which was at one stage done by FOUR men. Complaints have been heard about the non-appearance at some meetings of ESC but if Dick is unable to attend and there are no other volunteers, what is he supposed to do?

Tom Sears VK5NTJ, who was doing such an admirable job of canvassing advertisers for our journal, has unfortunately had a stay in hospital with a suspected heart attack. I hope that by the time you get to read this you will be well on the road to

recovery Tom (and for those of you who have, or were thinking of, nominating to stand for council election — this is not an indication of how hard we work our volunteers!)

We received a request that our local journal be sent to the federal councillors in each division. Currently a copy is sent to the secretary in each Division (alternate months Feb., April, etc.) so if you are not getting to see a copy, ask your secretary which WPB he filed it in.

As the theme for the year is communications, Staunton (Mac) McNamara VK5ZH our Programme Organizer has come up with a series of lectures on some of the things that amateurs get involved in, and all are aimed at 'getting started' in these other aspects. For example, our February meeting will be a lecture by Bill Simister VK5KTV on 'Getting started in ATV' (past tense by the time you read this!) Our March meeting will be by Graham Ratcliff VK5AGR on 'Getting Started in Satellite Communication' and in May we hope to have John Mitchell VK5JM on 'Getting started in RTTY'. One on Micro Processors has also been suggested.

DIARY DATES:

22nd March Graham Ratcliff on 'Getting started in Satellites'.

29th March Buy and Sell.

26th April Annual General Meeting.

AR

NOTICE OF AGM

Notice is hereby given that the AGM of the Western Australian Division of the Wireless Institute of Australia will be held on Tuesday 19th April 1983 at The Institute of Engineers, 712 Murray Street, West Perth on the conclusion of the General Meeting. Business to be transacted will be:

- 1 Consideration of Council's Annual Report and Balance Sheet.
- 2 Election of Office Bearers viz:
 - a President
 - b Vice President
 - c Seven Other Councillors
- 3 Election of two auditors.
- 4 Appointment of a Patron.
- 5 General Business which has been duly notified.

Agenda items will be advised on the Divisional Newsbroadcast on the three Sundays prior to the AGM.

Members unable to attend may appoint another member as their proxy in writing in the following form:

I member of the Institute
hereby appoint Mr/Mrs
also a member of the Institute to act for me as my proxy and in my name to do all things which I myself being present could do at the meeting of the Institute to be held at The Institute of Engineers,
West Perth on the 19th April 1983.

Signature

Witness

Date

AR

WIA INSERTS INTO AR

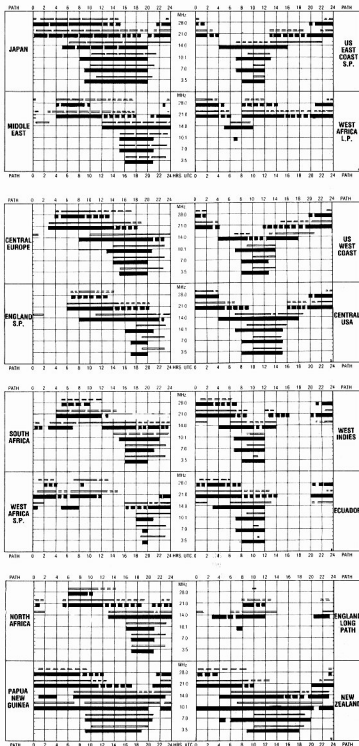


NOTICE TO WIA ZONES, CLUBS AND GROUPS

WIA Zone, Club and other Group Secretaries are hereby notified that inserts into AR henceforward will be accepted ONLY direct from a Division and then only by prior arrangement with the Secretary.

All inserts must comply with Postal Regulations and must be received not later than the 26th of the month preceding publication date.

IONOSPHERIC PREDICTIONS Len Poynter VK3BYE





LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.



12 Lillian St.
Cottesloe, WA

40 St Peters Terrace,
Willunga 5172
11th Jan 1983

The Editor,

Dear Sir,

For some years I have been frustrated by the lack of availability of information on which consumers of amateur radio equipment can base their buying decisions.

In my case, this has proved a positive disincentive to buy.

I am a regular reader of Amateur Radio, the VKS Journal and Electronics Australia. Occasionally I read Amateur Radio Action.

I want a tri-band beam. "KLM" and "Wilson" seem to be highly regarded. I took a visiting American amateur to inform me that "someone in Sydney" distributes KLM antennas, but I have no idea who it is, nor do I have any idea where I might find out about the Wilson range.

I would like to get into "glass RTTY". "HAL" is certainly advertised, but dear. "Xitex" seems to be popular, and cheaper, but I can't find information anywhere.

Looking for a 70 cm multi-mode transceiver, all I can find is "IC251A S850", which doesn't mean a thing. Indeed, I suspect it may even be a 2 metre rig. Perhaps these makers have advertised in some of the journals mentioned, but it is certainly not regular.

Yaesu equipment is reasonably well described, Kenwood is a poor second, and all other makes are a disaster.

From your perusal up to date it must appear obvious that a monthly article on each of these will help the recently initiated to become more enlightened and interested in joining the WIA and reading "Amateur Radio".

Finally have you noticed how measurements and details of circuits always appears barely discernable to the eyes of mature readers? (See pages 15, 18.)

QSP — The "Q" code says relay to ...? How does this fit in with say "Nail polish in the Shack".

Curiously Yours
R A Davey VK6NND

Yours faithfully,
Al Rechner VK6EK
AR

Eugen-Huberstr 25
8048 Zurich
Switzerland
24th December, 1982

Dear OMs,

Here I send my SA20 for 1983 "Amateur Radio". Thank you very much for sending me the "AR" during the past years.

I like to say your Journal is the best Amateur Radio Journal all over the world.

I made my licence this week and hope to QSO with VK soon and come to Aussie-land.

With best wishes for 1983
Yours sincerely
Fri Zwingli
HE90ZH
AR

The Editor,

Dear Sir,

I note many SSB operators don't know the frequency they are on, as they forget that the counter readout or dial frequency is the suppressed carrier frequency and NOT the radiated frequency.

Eg there are often SSB stations whose lower sidebands extend some 2 kHz into the CW only portion of 40 metres. Of course their read-outs show they are slightly higher than 7.030 MHz but they completely forget they are on LSB.

I note the same problem in the recently issued new bands, some frequencies are to be kept clear but many SSB operators are forgetting their sidebands extend some 2.5 kHz from the indicated frequency.

Hopefully this letter will remind such SSB operators that when on LSB the indicated frequency is the high frequency limit of their radiated pass band and that the lower limit is about 2.5 kHz lower.

On USB the indicated frequency is the lower limit and the upper limit is some 2.5 kHz higher.

Thanking you
Bruce Hannaford
VK5XJ
AR

129 Coode Street
South Perth, WA 6151
12/12/82

The Editor AR,

Dear Sir,

I have been noting with interest the appeals, both in AR and on federal news tapes, for us all to report intruders in our bands. In recent months the tone of desperation has increased almost to the point of hysteria. "For Pete's sake", the exhortations seem to say. "Don't you care? Can't you see how important it is? Please, please, report intruders!"

Despite this, it seems obvious that amateurs are turning a deaf ear — otherwise there would be no need to keep repeating the pleas.

Amateurs are not stupid. They can see the arguments in favour of reporting, and it is unlikely that they are too lazy to do it. Why, then, are they aged with indifference? As one who regularly reported intruders for a couple of years, and finally stopped doing so, I think I know the answer.

Bill Martin, the Federal Intruder Watch Co-ordinator, came near to it in his open letter (December AR, page 72) when he said that the results and satisfaction (of reporting) are not immediate. He is right. He also said, "When we eventually do manage to force an intruder to QSY, you can then derive some satisfaction in the knowledge that it was done with your assistance." Wrong! You never know. The simple fact is that there is little or no feedback. All the reports that I posted could have been sent straight round to the local rubbish tip for all I knew.

If a man joined a rifle club and simply blazed away at a distant target without ever being told what his score was — or whether he had even hit anything — his enthusiasm would gradually dissipate and he would give up. This is what happened in my case, and I suspect it has happened to others, too.

Why not use the time, space and effort currently wasted on futile appeals, to run a monthly column similar to "How's DX", listing intruders reported each month, asking for reports on certain stations and giving news of successful removals from our frequencies. Invite those useful people, short-wave listeners, to take part. Try to pack in as much information as possible to make it a really interesting department and give credit to the various reporters for their efforts. It may take a while to build up, to quote once more from the open letter: "The benefits may take some time to become apparent". Be that as it may, simple psychology will always get results where other methods have failed.

Yours cordially
Jeff Jeffrey VK6AJ

The Editor,
Dear Sir,

Having read your December issue of Amateur Radio I would like to make a few observations regarding its contents.

I am a recent qualifier in amateur radio but have read your magazine for some two years courtesy of a full call amateur.

During this period I have endeavoured to comprehend some of the articles, and there must be many of your readers who, (while not admitting to) would likewise be in the same category.

Listed below are a few of these:—

Ionospheric Predictions p 86

Intruder Watch p 72

Quick reference to Alpha Soup p 67

Unusual Prefix List

WICEN News p 87

Ionospheric Predictions — the top line of figures (barely readable) 0 to 24 is this a date?

Intruder Watch — the article invites other amateurs to report intruders. How does one know who or what an intruder is?

Quick reference to Alphabet Soup — what exactly does this mean?

WICEN News — I recently wrote to the organisation enquiring as to how one becomes a member (I am a current member of Sea Search & Rescue in WA) but have received no reply so must assume Novices are excluded.

From your perusal up to date it must appear obvious that a monthly article on each of these will help the recently initiated to become more enlightened and interested in joining the WIA and reading "Amateur Radio".

Finally have you noticed how measurements and details of circuits always appears barely discernable to the eyes of mature readers? (See pages 15, 18.)

QSP — The "Q" code says relay to ...? How does this fit in with say "Nail polish in the Shack".

Curiously Yours
R A Davey VK6NND

EDITORS NOTE—

Thank you for your comments. I will briefly explain some details to you, and perhaps other newcomers may also benefit.

1. Ionospheric Predictions — 0-24 is the UTC period for the band opening. A new legend is in course of preparation to avoid confusion.

2. Intruder Watch — I am surprised at your comment, as this matter has been well publicised in the past. An intruder is any other station operating in the amateur bands which is not licensed to do so, eg Commercial broadcasting, pirate operations.

3. Alphabet Soup — You haven't tried the Heinz variety yet? There have been many changes to several countries' prefixes in recent times, it is almost like throwing letters into a pot, and drawing out a prefix as it suits!

4. WICEN — I suggest you write again to the VK6 WICEN Group, your letter may have gone astray. There is no restriction on Novices becoming involved. In fact Novice participation is more than welcomed.

5. Print size — yes other complaints have been made, we are endeavouring to enlarge some.

(VK3UV)

AR

BILL VK2EBM WRITES IN REPLY TO JEFF VK6AJ —

In any field of endeavour, when contributions are solicited, the resultant return is more often than not unsatisfactory. Mr Jeffery is of the opinion that the continuing requests for more intruder reports ("bordering on the hysterical") stems from a lack of support for the Intruder Watch. This is not so. The ratio of reports received to the number of active amateurs is encouraging, and, of course, I realise that we will never receive reports from all amateurs. But how many reports would be received if none were solicited? Any at all, I wonder? I think it goes without saying that we must continue to ask for reports on intruders. Apparently, Mr Jeffery sent in reports for a couple of years, and received little or no feedback. I am pleased that Mr Jeffery is still aware of the existence of the Intruder Watch, and I think that he IS AWARE of it, because of the continuing requests for help.

However, on the feedback question, I think that most people would certainly realise that they can't expect a reply to every report that they submit, as the cost would be prohibitive. Even now, that cost is a major consideration. I think that Mr Jeffery would find, on enquiring, that the regular intruder observers are quite happy with the situation as far as being kept informed is concerned.

During my short term (six months) as Federal Intruder Watch Co-ordinator, I have mentioned specific intruders in the columns of AR, and asked for reports on them. As VK2 intruder Watch Co-ordinator, I send out regular IW Bulletins with new information on intruders to all WIA affiliated radio clubs. Perhaps Mr Jeffery could contact his divisional IW Co-ordinator, and perhaps learn what is happening regarding intruders at the present moment.

As for his statement that the current appeals for reports are a waste of time, space and effort, and are futile, I suggest that possibly he would care to act as my assistant for a short while, and give me a hand to answer all the letters, etc. which arrive AS A RESULT OF THE FUTILE APPEALS. Mr Jeffery suggests that better use could be made of the AR intruder Watch column, for example: list all the current intruders reported for each month; give credit to the various reporters for their efforts, etc. Naturally, I must agree with Mr Jeffery on this, as it is good constructive criticism — however, unfortunately, I would need about three pages each month of AR for this, and I don't think that the editor would be too pleased with me. Space does not permit the listing of all reported intruders. However, we do always ask for reports on specific intruders, and will continue to do so. Mr Jeffery goes on to say, "invite those useful people, SWLs to take part". I have done this many times, and DO receive reports from SWLs for which the Intruder Watch is very grateful. Mr Jeffery's comments and suggestions are noted, and we are always ready to listen to ideas and suggestions to improve the effectiveness of the Intruder Watch.

However, as with any hobby, time is limited. Most of my leisure time is now accounted for due to the duties associated with the Intruder Watch, FOR WHICH I VOLUNTEERED, and certainly make no complaints about doing the duties. If I didn't want to be bothered with it all, I just have to say so. In short, the Intruder Watch is doing the best it can, with the resources at hand, and at the risk of being accused of yet another near-hysterical outburst, I must say once again that the whole effectiveness of the Intruder Watch is SOLELY DEPENDENT on the average amateur letting us know what he hears in the way of intruders.

In closing, I think that the average Intruder Watch Observer knows that we are grateful for his/her report, and help, and when we do publicise the fact that such-and-such an intruder has disappeared from the Amateurs bands, then the reporter can say to himself, "well, I sent in some reports on that one, it must have done some good". I certainly hope that Mr Jeffery will resume sending in his reports, and can assure him that they will be received most gratefully, and, of course, the writer is always standing by ready to answer any queries regarding intruders, or the Intruder Watch. Very 73

Bill Martin VK2EBM
Federal/VK2
Intruder Watch Co-ordinator
AR

4/4 Talpa Cres
Corio, 3214
10 January 1983

The Editor,
Dear Sir,

Might I enquire by what process are the rules of the WIA sponsored contests changed? I refer specifically to those of the John Moyle Memorial Contest as published in AR of January '83.

It appears that the rules are set and altered arbitrarily at the whims and fancies of the Federal Contest Manager or a very select and anonymous few without opportunity for prior comment by interested parties.

Furthermore, the actual changes are not necessarily to everyone's liking. For instance, why was the starting time for the contest brought forward by two hours into a period where propagation on the lower HF bands is marginal? What was wrong with the old starting time? Why was the X2 multiplier removed for CW-CW contacts? That, certainly removes any incentive to operate CW. Why must we now allow a minimum of four hours to elapse between VHF contacts with portable stations? Originally the 2-hour rule for VHF was included to stimulate activity on these bands — particularly 6 and 2 metres SSB. It's hardly worth the effort of taking these two bands now.

Surely the sensible thing would be to inform readers of AR by publishing any proposed changes well in advance, by say May or June in the Contests department. This would allow an opportunity for discussion and comment by intending contestants.

Lastly, why is acknowledgement rarely made — and then selectively — of suggestions for changes to future contests? I can think of only one occasion when a suggestion was published for discussion — when a VK4 group wanted the date of the field weekend changed to late autumn or winter I believe. Whatever came of the suggestions which other entrants made? I know the contest group with which I participate regularly did, as we do every year, include with our log sheets a list of suggestions which we consider would improve the Field Weekend contest. I'm sure others do the same. It would of course be pretentious to expect these changes to be adopted out of hand, but what about discussing them, through AR?

The John Moyle contest is a great bun fight and I wouldn't miss it for the world; it's the only contest with a sensible multi-operator section. But I would like an opportunity to comment on rule changes before they are adopted, as would many others. I am firmly opposed to change for change's sake.

Charlie Graccarini
VK3BRZ

EDITOR'S NOTE: Many thanks for your interesting comments. Rule changes are made only by suggestion from a majority of participants, and agreed to by the executive. Only by trial and error can we sort out the bugs. I hope you enjoyed this year's contest, and would be pleased to receive further comments.

FCM's COMMENTS ON CHANGES TO JOHN MOYLE CONTEST

The rules of the John Moyle Contest are changed by the Federal Contest Manager as part of his duties.

Request for comment was published in AR, Aug 1981. On the date for the contest and for helpful comments. These comments were received over the following six months and collated. The rules now published are a submission from the VK4 WIA workshop 1982, which answered a great deal of the requests and suggestions put forward by the amateurs.

The starting time has been brought forward one hour not two. This will have only a marginal effect on the HF bands but

will assist the VHF band and above. The extra hour will also allow a little more time to pack up and get home before dark.

One point per contact CW is a trial, the comment being that only the very proficient CWer operates in this mode during contests and therefore he effectively excludes any person who is not fully proficient. The contact rate is 'similar' to the phone rate and therefore provides a vast advantage of scoring over the phone operator.

The one point per contact is also easier to check for my purposes.

Four hours between contacts VHF/portable stations is designed to encourage the use of better antenna systems and more bands. It also reduces the tendency of scheduling contacts.

Acknowledgements of comments for contests is usually made on a general basis. However the space allowed for contests in AR (for which is taken out of your subscriptions) is not unlimited and it is usually used for the more important subjects, such as rules and results.

Finally the date of the contest was left on the original date as the winter months in the southern states would preclude much of the activity of the contest. It is also the date of the NZART Field Day Contest who have included awards for the VKs in their rules.

Reg VK1BR
FCM

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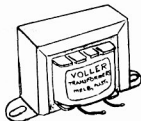
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Silent Keys

*It is with deep regret we record
the passing of—*

RON JARDINE VK3PR
H. R. G. MORRIS VK4VLM, G4ZMI



The late Ron Jardine VK3PR.

Obituaries

KEN ALLEN

VK3UH

"How are those sheilas treating you?" — an opening query I shall miss from Ken Allen, VK3UH who became a silent key on 20th January 1983.

Ken was a country lad, born early in the century. He discovered the wonders of radio at a very early age, at times catching and selling rabbits to support the hobby.

It was through his early interest in radio which led him to a very worthy period of service as a radio operator in the RAN, mostly serving in "N" class destroyers, one of which was sunk under him in the Mediterranean.

He was a cool with a memory to match his wide experience, and an ability to discuss things in the finest detail (a very rare commodity in the world of today).

Ken was a reliable source of Australian culture and character anecdotes which he greatly enjoyed sharing. The type of bloke we can ill afford to lose — a gentleman who will be sadly missed.

Alan Heath VK3KZ
AR

GERRY BAHRE VK4YB

It is with deep regret the passing of Gerry Bahre is recorded on the 11th January 1983 after a lengthy illness.

His passing is mourned by his XYL Ann, his daughter Johanna and sons Gerard and Tony and six grandchildren. Also many friends and acquaintances made "on air" over a period of twenty-six years.

A native of Holland, Gerry and his wife came to Australia in 1953 and first settled in Coolangatta, Queensland. After about three years he opened a radio repair business in Mareeba.

Having brought a PA0 callsign with him from Holland, he took out a call sign in Queensland which became widely known as VK4YB —phonetically "Yogi Bear". In 1959, when television was first introduced in Queensland, he and his wife and family came to Redcliffe and became firmly established as a radio and television repairer, relinquishing to his son only a short time before he died.

In 1967 he joined the Lions Club of Redcliffe Peninsula and in the intervening years he held many positions, including that of President, with an unblemished attendance record.

He was a founder member of the Redcliffe Radio Club and was a source of inspiration and practical guidance to many Club members. He will be sadly missed.

Dave VK4UG
AR

RON JARDINE VK3PR

Ron Jardine of Leongatha, VIC. passed away suddenly on Friday 21.1.83.

Following a service in the packed Uniting Church on Jan 24, he was interred at Leongatha Lawn Cemetery.

The service was attended by Ron's very many friends including large groups of Church fellow members, Masonic Brethren and fellow amateurs.

He was a very well known popular amateur, active on air, in zone affairs, and with the Old

Timers club with fifty-three years of regular operating on most bands both phone and CW and setting an example of consistently good operating practices. He had filled over 30 large log books containing over 50,000 contacts with 167 countries.

One ambition was to work every DX country — obviously he nearly made it.

He is survived by his good wife Vernie, who was famous for her support of Ron's amateur activities, and especially the production of chocolate cream sponges, (known as Mrs Jardine's CCs) which would invariably appear at zone get-togethers and conventions, and two sons. One, another Ron, is currently preparing to pass the AOCPE exam. We all hope he will secure the call sign VK3PR.

Amateurs who attended our last farewell were:

Harry	VK3HC	Harry	VK3GO
Cliff	3AJA	Mac	3RU
Keith	3IV	Ed	3EM
Keith	3SS	Jack	3AJK
George	3HV	Stewart	3BSM
Ossie	3AHK	Arch	3BW
Graham	3QZ	Charlie	3CMA
John	3BR	Len	3DLM
Fred	3QH	Peter	3DDL

My lasting memory of Ron was in 1937 when on a simple home brew, I first called CQ and was promptly answered by VK3PR. Years of ambition ended with this exciting first phone contact.

We will all remember the long friendship, the technical exchanges, the pleasure of his company at amateur gatherings, the many photographs he took and presented to us all. I am requested to extend on behalf of the amateur fraternity our sincere sympathy to Vernie and sons.

May we all share your fond and happy memories.

ROSS TREHARNE

VK5IQ

It is with deep regret that I report the passing of Ross VK5IQ at the age of sixty-three years, on the morning of 30th December 1982.

He attained his licence in Sydney at the age of fifteen years, and was the youngest to have done so at the time. He then held the call of VK2IQ and became very involved in the activities of the Zero Beat Radio Club, particularly their field day activities. One of his close associates at the time was the late Maurice Brown VK2QI.

Post war, Ross and his family moved to South Australia, in fact Adelaide, living for the first seven years at Plympton, then moving to live in Clearview until his passing.

Amateur wise, Ross was a solid supporter of Jamboree On The Air weekends, where he and his XYL Norma tried to satisfy the Cubs and Scouts seemingly unsatiable food and radio appetites.

Ross leaves many friends, both from his amateur radio activities, and his business world, Defence Research Centre Salisbury, from which he recently retired.

Our deepest sympathies go to his wife Norma, his four sons Douglas, Edward, Ian and David, and his brother Elgar VK5ED.

His son Douglas has taken over the call of VK5IQ to let it live on. Ross will be missed by many amateur friends both here and overseas.

John Butler VK5NX

AR



83/84 CALLBOOK

Work has commenced on
the next edition!

Are your details correct
in the last edition?

If not please notify the WIA
Federal Office —

**PO Box 300
South Caulfield
Vic. 3162.**

WARNING!!



Disposing of your old rig??

Please ensure it goes **ONLY** to
someone licensed to use it on
YOUR bands.

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PLEASE NOTE: If you are advertising items **FOR SALE** and **WANTED** please write on separate sheets, including **ALL** details, eg. Name, Address, on both. Please write copy for your *Hamad* as clearly as possible, preferably typed.

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- * Copy in typescript please or in block letters double spaced to PO Box 300, Caulfield South 3162.
- * Repeats may be charged at full rates.
- * Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- * QTHR means address is correct as set out in the WIA current Call Book.

Ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being resold for merchandising purposes.

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Conditions for commercial advertising are as follows: The rate is \$15 for 4 lines, plus \$2 per line (or part thereof) minimum charge \$15 pre-payable. Copy is required by the first day of the month preceding publication.

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23 cm LOOP YAGI's and power meters, semi rigid coax, PTFE PCB board, waveguide, flanges, Gunn and mixer diodes and our 3cm transceiver module are a few items from our lists. SAE to (Microwave Developments, 6 Netley Rd, Mt Barker, SA 5251.

WANTED — NSW

CIRCUIT DIAGRAMS or information on Hy-Gain "One-Arm Bandit" CB and "Nordmende Globe Trotter". VK2YX QTHR.

CIRCUIT DIAGRAM. Good clear copy for Geomtronics GTX-2325 CB radio. VK2KB QTHR.

COLLINS TRC-75 transceiver. Must be complete and preferably with manual. Ph: (02) 969 4539.

MORSE KEY. Small military type or old post office key. Pye Model ZA28656 preferred. VK2NSR. Ph: (02) 588 3736.

WANTED — VIC

CRYSTALS: 4058.333 kHz and 4066.667 kHz for VHF TX. VK3TJ QTHR. Ph: (03) 354 2401.

FAIRCHILD TYPE 4710 CMOS 16 x 4 RAM. Price and number available to Mike VK3CZC. Ph: (03) 563 2224 (AH) or (03) 573 2463 (BH).

KENWOOD BSS PAN DISPLAY wanted, will exchange with type B58 in good condition, required for ZL1RC. DEN VK3DIS. Ph: (03) 592 4093. Would also consider cash sale.

MANUAL — Loan of or buy B.41 receiver manual or any info please. Will pay costs. Also any valve receiver with LF and/or VLF bands. Condition unimportant. VK3DLJ QTHR. Ph: (03) 528 3380.

TRANSVERTER SSM Europa for 6 metres Jim VK3AS
QTHR. Ph: (03) 277 1613.

WANTED — QLD

CIRCUIT DIAGRAM and/or workshop manual for a
Halcrafters Company Transmitter, model No. HT-
37. Will pay necessary charges. VK4KEB QTHR. Ph:
(071) 72 3865 (AH).

INSTRUCTION BOOK and circuit diagram for Traeger
Tcvrs 59SA, No. L766 & 3217. Len Saunders. PO Box 454
— Atherton Qld. 4883.

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QTHR.

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SB220 \$650. Homebrew 6 m transverter \$75. Swan
700 CX power transformers \$15. VK2AHK QTHR. Ph:
(045) 73 6215.

MICROWAVE MODULES 432-28 transverter with extra
crystal for 434-436 \$120.00. Yaesu FTV650. 6 m
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QTHR. Ph: (044) 21 2786.

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manuals. Technical service manual for FT707
\$1200. Dennis VK2KVV QTHR. Ph: (02) 645 3441
(AH).

YAESU FT-9010 in good condition, including DC-DC
converter and memory unit \$750 ONO. Also Kenwood
AT180 ATU in good condition \$100. Brad VK2OBM.
Ph: 51 7257 (AH).

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FT200 with match power supply and speaker. spare
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RE: ADVERTISING ERROR

Vicom's recent advertisement for "Vicom's
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It showed the price of the LA4015A (Daiva
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VOL. 51, No. 3 MARCH 1983

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